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Santa Clara Valley
Water District

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MID-COYOTE CREEK PROJECT PLANNING STUDY

Montague Expressway to Interstate 280

Project No. 26174043

CONCEPTUAL ALTERNATIVES REPORT

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Prepared by:

Watershed Capital Division

March 2011

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CHAPTER 1.0: INTRODUCTION

1.1 Background

The Mid-Coyote Creek Project is located in the central portion of the Coyote Watershed. Its limits extend approximately 6.1 miles from the downstream face of the Montague Expressway Bridge to the upstream face of the Interstate 280 Bridge; the entire project is located in the City of San Jose (see Figure 1–1). The project is currently in the planning phase.

The Mid-Coyote Creek Project is part of the Clean, Safe Creeks Program approved by the voters in November 2000. The project's primary objective is to enhance the creek's conveyance to protect homes, schools, businesses, and highways from the 100-year flood event. Additionally, the project will improve ecological function and habitat values as well as provide public access opportunities in cooperation with the City of San Jose. This multi-year study will necessitate preparation of a Planning Study Report.

This report describes the conceptual alternatives developed for the Mid-Coyote Creek Project Planning Study and evaluates each alternative against our criteria established by the project team. The first chapter of the report describes the project's background, objectives and problems defined so far. The second chapter discusses the project alternatives. The third chapter discusses the alternatives' evaluation methodology and the project team's findings / recommendations.

1.2 Project Goals and Objectives

It is the goal of the District to provide a healthy, safe and enhanced quality of living in Santa Clara County through watershed stewardship and comprehensive management of water resources in a practical, cost-effective and environmentally-sensitive manner.

Board Governance Policy E-3, Article 3.2.1 states, “Reduce flood risks in flood prone areas.”

Board Governance Policy E-4, Article 4.1.2 states, “Protect and improve watersheds, streams, and natural resources.”

Board Governance Policy E-4, Article 4.3.1 states, “Support additional trails, parks, and open space along creeks and in the watersheds when reasonable and appropriate.”

The Project objectives are to:

A. Provide flood protection from Coyote Creek's 1% flood event within the project limits wherever feasible; the use of non-structural and/or minimal hardscape features will be included for creek improvements.

B. Mitigate for all project impacts to stream habitat values and fisheries.

C. Identify stream habitat enhancement and/or restoration opportunities.

D. Identify opportunities to improve water quality within the project limits.

E. Identify opportunities to provide for public recreation and access.

Minimize the need for future operations and maintenance activities and create a self-sustaining system within the completed project limits.

Obtain community support for the project.

1.3 Problems Defined

The project team has completed a Problem Definition Report that described our study findings within the project area. Several major issues have been identified in the report, such as flooding, water quality, erosion, wildlife and aquatic habitat, and maintenance access. See Mid-Coyote Project Problem Definition Report (2006) for details.

1.4 Design Criteria

The more detailed design criteria are described in a memo written by the project team. These criteria were used in developing alternatives. The following list is a summary of a few key criteria in the memo.

A. One Percent Design Flow

The one percent design flow has been determined to be 17,100 cubic ft. per second (cfs) between Montague Expressway and Upper Penitencia Creek confluence; 17,000 cfs between Upper Penitencia confluence and Lower Silver Confluence; and 17,000 cfs for the rest reach, based on the Coyote Watershed Hydrology Report, Santa Clara Valley Water District (July, 2004 and revised in May, 2009). This discharge includes flow contribution from the Upper Penitencia Creek and Lower Silver Creek tributaries.

B. Freeboard

- Minimum 4 ft. of freeboard for channel with earth levees or floodwalls;
- 1 ft. of freeboard shall be used for natural creek banks; and
- Minimum 4 ft. of freeboard for new bridges.

C. Access Road

- Where possible, two maintenance roads (one on each side of the creek) will be designed;

- Maintenance roads constructed at grade or depressed will have a minimum 20 ft. clear width.

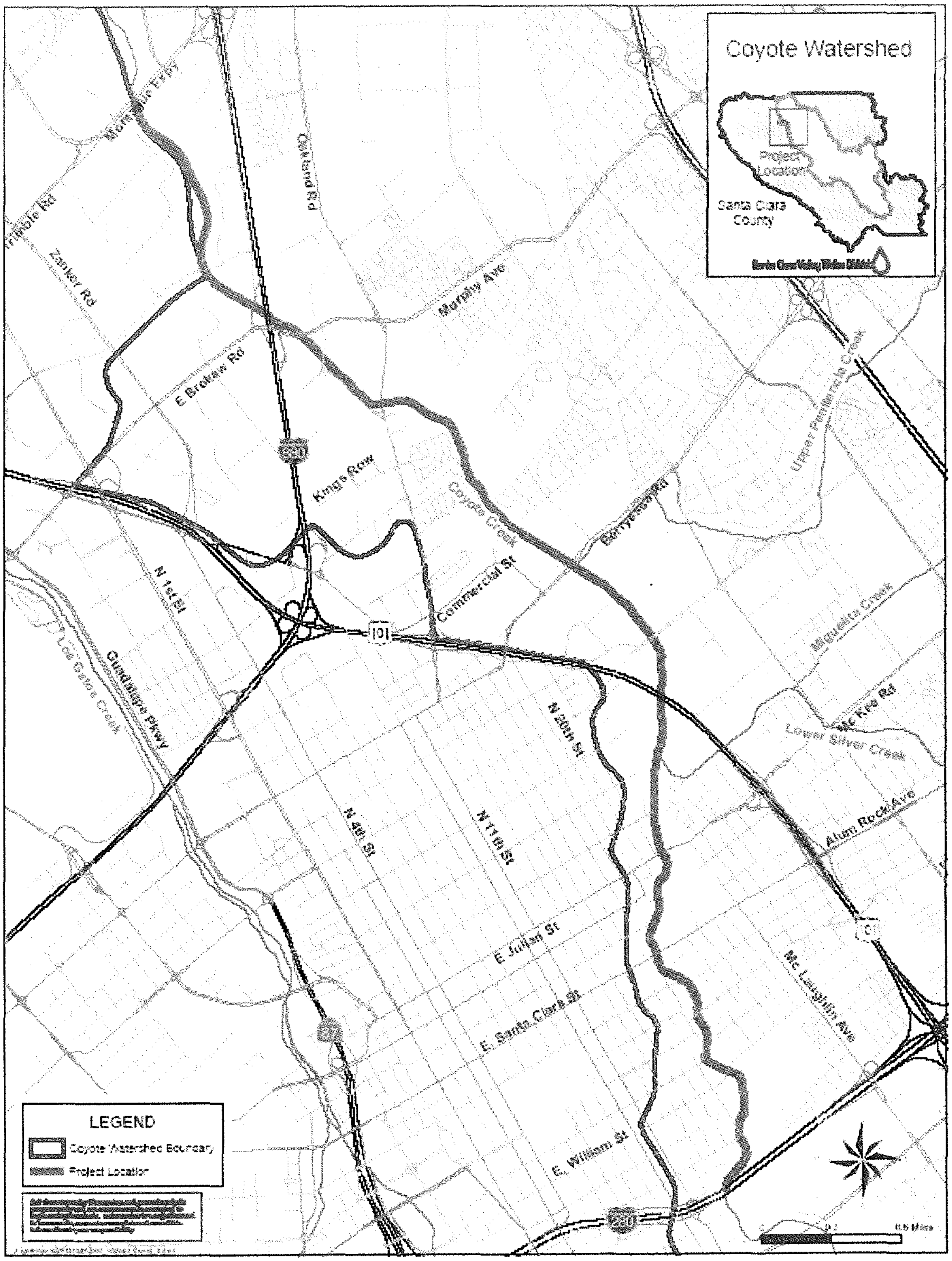

Fig. 1-1: Mid-Coyote Creek Project Area

CHAPTER 2: CONCEPTUAL ALTERNATIVES

The purpose of this report is to present conceptual alternatives developed thus far for the Mid-Coyote Creek project and to compare costs and benefits associated with each alternative to determine feasible alternatives for further consideration.

This report documents a wide range of conceptual alternatives with various approaches to meet the project's objectives. Each alternative includes a solution to the primary flooding objective and also incorporates means to meet water quality, habitat, and maintenance objectives. Engineering solutions include: channel widening, channel profile re-grading, floodwalls, a bypass culvert, offstream detentions, and reservoir operation and outlet modifications.

For purposes of discussion, the entire project area has been separated into 11 reaches that will be referred to throughout the planning study, as presented in Table 2-1.

Table 2-1: Mid-Coyote Creek Project Sub Reaches

Reach	Begin Station	End Station	Length (FT)	Description
4	1+86	46+39	4,640	500' downstream from Montague Expressway to Charcot Avenue
5	46+39	64+42	1,800	Charcot Avenue to Highway 880
6	64+42	81+00	1,660	Highway 880 to Ridder Park Drive
7	81+00	98+01	1,700	Ridder Park Drive to Old Oakland Road
8	98+01	157+66	5,970	Old Oakland Road to Berryessa Road
9	157+66	182+68	2,500	Berryessa Road to Mabury Road
10	182+68	196+09	1,340	Mabury Road to Highway 101
11	196+09	232+11	6,300	Highway 101 to East Julian Street
12	232+11	255+53	2,340	East Julian Street to East Santa Clara Street
13	255+53	289+25	3,370	East Santa Clara Street to East William Street
14	289+25	319+69	3,040	East William Street to 500' upstream from Highway 280

Note: All reaches and measurements reference the downstream face of bridges.

The project team determined engineering solutions on a reach-by-reach basis. This enabled sensitivity analysis to determine the most effective measures for each reach. For example, multiple channel widening scenarios with various flood bench widths were considered to alleviate flooding in Reach 4. By hydraulic analysis, the team determined that due to the mild longitudinal slope of Reach 4, increases to flood bench width eventually had minimal effect to lower water surface elevation and instead decreased an already acceptable average channel velocity. This process of investigation assisted the project team to determine appropriate bench widths and also indicated the need for floodwalls or levees in Reach 4. The process was repeated for each of the remaining reaches to determine appropriate scenarios. Conceptual alternatives were finally determined by combining scenarios from each reach to come up with overall project solutions.

Alternatives were developed with sufficient detail to determine approximate real estate and construction costs. The cost estimates for each alternative are listed in the Table 2–2. The alternatives then were summarized based on how well they met the project objectives.

Table 2-2 Conceptual Alternative Cost Estimates

Conceptual Alternatives		Real Estate Cost (millions)	Construction Cost* (millions)	Total Project Cost (millions)
A	No Project	-	-	-
B	A. Fluvial Geomorphic Alternative	$269	$85 - 106	$540 - 560
C	A. Utilization of 100' setback for benches	$296	$77 - 96	$480 - 500
D	A. Creek Invert Reprofile – 0.3%, 0.035%	$218	$66 - 83	$520 - 530
E	A. Creek Invert Reprofile – 0.3%, 0.07%	$277	$83 - 104	$590 - 610
F	A. Creek Invert Reprofile – 0.28%, 0.07%	$278	$85 - 106	$580 - 600
G	A. Levees and floodwalls	$300	$103 - 128	$440 - 470
H	A. By-Pass Box beneath William St and 21st St	$300	$191 - 210	$570 - 590
I	A. By-Pass beneath 17th St and Mission Road	$54	$270 - 280	$380 - 390
J	A. Reservoir Operation Modification – releasing water from 90% to 64%)	$135	$269 - 358	$400 - 490
K	A. Reservoir Operation Modification – water at 64% full	$54	$180 - 224	$230 - 280**
L	A. Offstream Detention Ponds	$136	$845 - 1,130***	$930 - 1,270
M	A. Offstream Detention Ponds, reservoir from 90% to 80%)	$169	$684 - 880	$850 - 1050
N	A. Offstream Detention Ponds, reservoir from 90% to 75%)	$143	$554 - 694	$700 - 840
O	A. Upstream Detention Ponds and Downstream Bypass	$89	$724 - 964	$810 - 1,050
P	A. Reservoir Modification and Downstream Bypass	$135	$386 - 465	$520 - 600
Q	A. Coyote and Anderson Reservoir Operation Modifications	$54	$410 - 551	$460 - 610

Notes

* Construction costs includes 25% construction contingencies for alts B-I and 40% for alts J-Q

** cost of water loss is not included

*** Not enough open space for the required detention volume. The cost doesn't include the land that is not available.

Mitigation cost column is hidden between Real Estate and construction cost column and has values only for alts B-I and are added to the total project cost of alt B-I

A description of each conceptual alternative including physical layout, cost, benefits, and ability to meet project objectives follows.

2.1 Conceptual Alternative A (No Project)

A. Alternative Description

Under conceptual Alternative A (no project), no new project scenarios would be implemented in the study area. Flood flows would continue to overtop channel banks and inundate adjacent properties, resulting in flood-related damages to residences, roadways, and businesses (see Figure. Alt. A).

B. Project Objectives

This alternative would not meet any project objectives. A summary of the alternative's effectiveness to meet project objectives follows.

Objective 1: Provide Flood Protection

Homes and businesses located within existing 1% flood areas would remain at flood risk and continue to pay flood insurance premiums. About half of the 17 bridges in the project reach would flood as would a number of the existing levees. Levees not flooded would be severely compromised and potentially damaged as the freeboard requirements would not be met at nearly all locations.

Objective 2: Identify Stream Habitat Enhancement and/or Restoration Opportunities

The value of the project reach for native flora and fauna would decrease as non-native plant species would continue to proliferate within the project reach. It is anticipated that sediment deposition would persist in the lower project reaches and near the confluence with Upper Penitencia Creek. This gradual accumulation of sediments would continue to decrease the creek's existing cross sectional area or floodwater conveyance and possibly initiate lateral channel bank erosion. Vertical creek bed erosion and associated bank failure is also expected at Reaches 6 and 7 where the channel's existing cross sectional area is narrow and deep and floodwater velocity in the channel is excessive.

Objective 3: Identify Opportunities to Improve Water Quality

Water quality conditions would not be improved and are likely to degrade due to increased bank erosion, poor circulation in the upper reaches, and continued trash accumulation throughout the project reach. Water quality would continue to be a concern for residents.

Objective 4: Identify Opportunities to Provide Public Recreation and Access

No new public trails or creek access would be constructed.

Objective 5: Minimize the Need for Future Operation and Maintenance Activities and Create a Self-Sustaining System

Current operation and maintenance practices would continue where the District holds right-of-way or ownership rights. Typical maintenance activities include vegetation management in the lower reaches, vegetation (overgrowth) removal, erosion repair in natural sections, trash and debris removal, and graffiti removal. It is likely that no new maintenance activities on privately held properties would be provided.

Objective 6: Obtain Community Support

Current cooperation with local public agencies and interest groups to remove trash and debris and to develop pubic trails would continue.

C. Real Estate Needs

No real estate issues are expected; however, the District would continue to consider acquisition of creek side parcels that become available.

D. Cost Estimate

Capital costs would be $0.
Maintenance cost would continue to be $100,000 annually.

E. Technical Feasibility

No issues are expected.

2.2 Conceptual Alternative B (Fluvial Geomorphic Alternative)

A. Alternative Description

This alternative would increase creek capacity to accommodate the 100-year design flow through the use of levees, floodwalls and channel widening. It would also provide flexibility to accommodate habitat enhancements features in the future. Such enhancements could include gravel augmentation, fish habitat, geomorphic improvements and addressing other biological or water quality concerns in the project area.

Levees or floodwalls would be installed only in reaches where channel widening alone would not accommodate the design flow. Channel widening would consist of excavating the upper slopes of the existing creek banks to create floodplain benches designed to ensure sediment transport continuity within the low flow channel and to reduce shear stress at locations where high velocities during flood flows are likely to cause erosive conditions. The floodplain bench would be situated at the bankfull discharge elevation which is approximately 4 feet higher than the creek invert along the project area based on our field investigation.

Existing creek-side vegetation would be removed during the creek widening, and newly formed benches would be replanted with native vegetations. The vegetation removed for construction of levees and floodwalls would be mitigated either onsite or offsite.

To allow for inspection and maintenance, twenty foot wide maintenance roads would be located along the top of newly excavated banks where floodplain benches have been constructed, or along the inboard side of all floodwalls/levees, and on the top of the new levees. Three street bridges and one railroad bridge (UPRR) would be replaced and multiple utilities, including major water and gas pipelines, would be relocated. A Reach by Reach description of this alternative follows (see Fig. Alt. B).

Reaches 4–5 (Montague Expressway to Interstate 880)

Improvements to these reaches would include an approximately 150–foot wide excavated floodplain bench that alternates between the east and west sides of the existing channel and 4–8 foot high floodwalls at the outer limit of the maintenance roads. The floodplain bench would daylight roughly 150 feet beyond the existing right-of-way limits. A continuous maintenance road would be located along the new top of bank (both sides) at the limits of the channel excavation (see Fig. 2–1).

The existing bridge at Charcot Avenue would be replaced to meet freeboard requirements for the design flow and to accommodate a widened floodplain bench.

Reaches 6–7 (Interstate 880 to Old Oakland Road)

The existing creek channel has sufficient capacity to convey 100-year design flow between I-880 and E. Brokaw Road, therefore, no improvements are planned in this area.

Improvements would include a 100–ft. wide floodplain bench on the east bank between Brokaw Road and Old Oakland Road, and on the west bank between Brokaw Road and Ridder Park Drive. An approximately 5-ft high floodwall with a maintenance road would be installed on the west bank between Brokaw Road and Ridder Park Drive (see Fig. 2–2). The existing Ridder Park Drive Bridge would be replaced to provide hydraulic conveyance and meet freeboard requirements.

The existing UPRR bridge would also be replaced to accommodate a widened flood bench.

Reach 8a (Old Oakland Road to upstream of San Jose Municipal Golf Course)

The San Jose Municipal Golf Course is located on the east bank of the creek. The project assumed that the golf course can be used as a floodplain and be flooded seasonally; therefore, no improvements are proposed on the east bank. Improvements on the west bank would include a 100' wide floodplain bench. The new channel excavation would encroach into the manufactured home park and require 5–7 feet high levees for approximately 2,000 feet on the new west bank. Maintenance roads would be located at the top and along the inboard toe of the new levee (Fig. 2-3).

Reach 8b (San Jose Municipal Golf Course to Berryessa Road)

Improvements to this reach would include channel excavation with a 100' wide floodplain bench on the west bank. The 100' floodplain widening on the east bank starts at the Flea Market property. An approximately 4–10 feet high levee would be installed on the west bank of the channel. The maintenance roads would be on top of the east bank and on top of the new levee on the west bank. Fig. 2-4 demonstrates the modified cross section.

Reach 9 (Berryessa Road to Mabury Road)

Improvements in this reach would widen the channel on both sides to include 100'–wide floodplain benches. An approximately 4–10 ft. high levee would be installed on the west bank. The maintenance roads would be on top of the east bank and on top of the new levee on the west bank (see Fig. 2–4).

This alternative would also entail relocating the SCVWD large diameter, high pressure Central Pipeline which crosses Coyote Creek at a location just downstream (north) of Mabury Road.

Additional improvements may be required at the confluence of Upper Penitencia Creek with Coyote Creek where SCVWD and USACE are currently planning a separate flood protection project. Coordination efforts are being made to ensure that these two projects are planned concurrently and do not conflict with each other.

Reach 10 (Mabury Road to Hwy 101)

Improvements for this reach would include excavated 150–feet wide floodplain benches on both east and west banks. A new 3–6 feet high levee on the east bank and a 7–10 feet high levee on the west bank would be necessary to contain the 100–year design flow. The maintenance roads would be located along the inboard side and on top of the east and west levees (see Fig. 2-5).

Reach 11a (Hwy 101 to Lower Silver Creek)

Improvements to this reach are similar to those described for Reach 10. The reach would be widened to include 130'–wide floodplain benches on both east and west banks. An 8–12 feet high levee would be located on the both sides of the creek banks. The maintenance roads would be located along the inboard side and on top of both levees (see Fig. 2–5).

Additional improvements may be required at the confluence of Lower Silver Creek with Coyote Creek where the District and NRCS recently completed a separate flood protection project.

Reach 11b (Lower Silver Creek to Julian Street)

Improvements in this reach would include channel widening by excavating a roughly 130–feet wide floodplain bench on the east top of bank. An up to 6–7 feet tall levee would be constructed near the Lower Silver Creek confluence. Floodwalls would be installed on the downstream end of Lower Silver Creek on the both banks for a couple hundred feet. The maintenance roads would be on the existing west bank and located along the inboard side and on top of the new levee as well as the new top of bank on the east side (see Fig. 2-2).

Reach 12 (Julian Street to Santa Clara Street)

Improvements for this reach consist of a 150–feet wide floodplain bench excavated on the east bank. A short levee would be constructed on the west bank at some locations. The maintenance road would be on top of the new or existing banks or on top of the new levee if there is one (see Fig. 2–2).

Reach 13 (Santa Clara Street to William Street)

Improvements in this reach would include a 130–feet wide floodplain bench excavated on the east bank and 3–5 feet tall floodwalls at some spots along the east and west banks. The maintenance road would be located on tops of new or existing east and west banks or along the floodwalls (see Fig. 2-6).

Reach 14 (William Street to Interstate 280)

Improvements to this reach would include channel widening via 150'–wide floodplain benches situated at the bank full discharge alternating between the east and west banks. Levees 4–13 feet tall would be constructed on the both east and west banks with maintenance roads along the inboard side and on top (see Fig. 2–5).

B. Project Objectives

A summary of the alternative's effectiveness to meet project objectives follows.

Objective 1: Provide Flood Protection

This alternative would meet the objective of providing flood protection by widening the creek and installing flood walls/levees to increase channel capacity for the 100–year design flow. The hydraulic modeling indicates that the improved channel would have sufficient capacity for the 100–year flow and meet freeboard requirements.

Objective 2: Identify Stream Habitat Enhancement and/or Restoration Opportunities

This alternative would provide opportunities to enhance ecological stream functions by widening the creek and removing the dense and invasive vegetations on the creek side.

This alternative would improve the quality and quantity of habitat and connectivity with the newly created flood benches. Increased quantity of habitat may offset the habitat connectivity issues associated with floodwall construction. The habitat would be improved due to improved sediment transport by the creek widening.

The removal of the dense creek side vegetation for creation of the floodplain benches would improve the light penetration to the heavily shaded corridor. Solar radiation is necessary for photosynthesis by attached algae and is an integral part of stream ecosystem function.

Objective 3: Identify Opportunities to Improve Water Quality

This alternative may provide opportunity to slightly improve water quality by increasing the sediment transport capacity through changes in the current channel geometry. The enlarged channel would slow down the sediment transport and cause deposition of sediments, that has a potential to change pool-riffle reaches and may improve water quality.

The opportunities to improve water quality may also occur through managed vegetations on floodplain benches. This alternative would allow for the District to coordinate with the City to improve the control of non-point source pollutants, trash and debris that enter the stream by modification of the cities drainage outfalls. Improved access to the creek through the addition of maintenance roads, would allow the District to better address trash and debris issues within the creek corridor that leads to degraded water quality conditions.

Objective 4: Identify Opportunities to Provide Public Recreation and Access

This alternative would create opportunities to provide public recreation and access by incorporating new maintenance roads and CSJ's Master Trail Plan in the study.

Objective 5: Minimize the Need for Future Operation and Maintenance Activities and Create a Self-Sustaining System

Current operation and maintenance practices would be expanded to include the new facilities provided by this alternative. Typical maintenance activities will include vegetation management in the lower floodplain benches, vegetation (overgrowth) removal, erosion repair in natural sections, sediment removal, trash and debris removal, and graffiti removal. The new maintenance road/trails will give the District staff accesses to the creek and provide services to the community.

The new facilities described in this alternative would drastically increase the annual operations and maintenance costs compared to the existing conditions because of the additional right of way and maintenance requirements of the constructed improvements. The addition of maintenance roads/trails, levees, floodwalls and flood benches will require routine maintenance such as herbicide application, trimming and vegetation removal, invasive plant species removal and animal control, levee/bank/channel repairs, removing sediment, and graffiti removal. However, it is also expected that the multi-staged channel in this alternative will allow for natural river processes to transport sediment and scour vegetation from the low flow channel, effectively reducing the amount of sediment removal and vegetation management activities required to maintain the channel to design capacity.

For this alternative, it is anticipated with increased public access and maintenance roads that the District's cost for trash and debris removal would also increase considerably due to greater public awareness of trash and debris within the channel. Coordination with the City of San Jose on redesigning the drainage networks to Coyote Creek may alleviate some costs for trash removal in the creeks if the drainage networks are outfitted with debris collection devices. Additionally, opening up the creek corridor through creation of flood benches may decrease the number of homeless encampments that are currently found within the project limits.

Objective 6: Obtain Community Support

The Mid-Coyote creek flood protection project is funded for planning, design and partial construction under the Clean, Safe Creek program. This project will provide environmental quality, community benefit and protection from creek flooding in a cost effective manner. This is accomplished through integrated planning and management that considers the physical, hydrologic and ecologic functions and processes of streams within the community setting.

Some local residents have expressed objection over this alternative which requires land acquisition from creek side residents. Through continued outreach and open house meetings with all affected community members, the District doesn't anticipates finding great support from the community on this alternative.

C. Real Estate Needs

This alternative includes significant amount of real estate acquisition. The District holds very limited fee or easement rights in the project reach. As a result, a majority of the improvements presented under this alternative would require additional land acquisition at the current real estate values. Preliminary estimates indicate that roughly 132 acres of adjacent creek side land would be needed.

Reaches 4–5

The improvement would need approximately 23 acres of real estate from adjacent parcels currently used for industrial purpose.

Reaches 6–7

The improvement would need about 2 acres of real estate.

There is a newly developed retail center on the west bank between Brokaw Road and Ridder Park Drive. The developer has dedicated a 100' riparian corridor setback to the District. On the east bank, there is a vacant open-space area that has been proposed for developed. District staff has coordinated with the City of San Jose to implement its riparian setback policy on this property. This effort will result in the dedication of approximately 100 ft. of land as measured from the riparian corridor drip-line toward the new development.

Reach 8a

A number of manufactured homes would be relocated and approximately 5-acres of real estate would be required.

This alternative anticipates that the City of San Jose will grant right-of-way easement to the District to perform routine and occasional flood maintenance work along Coyote Creek adjacent to the golf course.

Reach 8b

The San Jose Flea Market property is located on the east bank of the creek in Reach 8b. The Flea Market site was recently proposed for development and planning documents were submitted to the City of San Jose (City). During the public review and comment period for the proposed development, District staff provided comments to the City Planning Department identifying the need to coordinate the proposed development with future flood control improvements (excavated floodplain bench) to avoid land use conflicts.

The floodplain benches and levees would require about 9 acres of real estate from adjacent parcels currently used for industrial purposes, some of which include operational facilities for businesses.

Reach 9

As in Reach 8b, similar efforts were made to coordinate with the City of San Jose for real estate needs along the east bank of the creek where the proposed development is planned at the existing Flea Market site.

The floodplain benches and levees would require about 13 acres of real estate from adjacent parcels currently used for industrial purposes.

Reach 10

The floodplain benches and levees would require about 8 acres of real estate from adjacent parcels currently used by the City of San Jose as a corporation yard on the east bank and for industrial purposes on the west bank.

Reach 11a

Approximately 9-acres of real estate will be acquired from the City of San Jose's Watson Park.

Reach 11b

The floodplain benches and the levee would require about 5 acres of real estate from the San Jose Unified School District and private residences situated on the east and west banks respectively.

Reach 12

About 11 acres of real estate would be acquired from the San Jose Unified School District and City of San Jose.

Reach 13

The floodplain benches and flood walls would require about 20 acres of real estate from private residences situated on the east and west banks.

Reach 14

The floodplain benches and flood levees would require about 8 acres of real estate from the City of San Jose and private residences situated on the east and west banks.

D. Additional Project Considerations

This alternative includes relocation of the District's high pressure Central Pipeline which crosses beneath Coyote Creek at a location just downstream from Mabury Road in Reach 8b.

Floodplain bench excavation activity along the project area is likely to intersect hazardous soils based on our preliminary HAZMAT study. In addition, old abandoned dump sites may also be intersected by the channel excavations in the Watson Park area.

This alternative requires the replacement of bridge crossings located at Charcot Road, Ridder Park Drive, and the UPRR Bridge. It may be possible to remove the Charcot Road Bridge crossing and forgo replacement by allowing existing roads to handle changes in local traffic patterns. Replacement of the bridge crossings may be eligible for cost sharing with the City of San Jose Public Works Department under existing guidelines. The new UPRR bridge would require the construction of a temporary bypass (shoo fly); however, construction costs may be reduced by purchasing new right of way, constructing the new bridge, and demolishing the old bridge. This approach would eliminate the need to construct and demolish the temporary UPRR bridge crossing, resulting in a direct cost savings.

E. Opportunities and Constraints

This project is covered under the Santa Clara County Valley Habitat Plan, therefore, the approval process for obtaining permits from three regulatory agencies could be streamlined through the process which is currently in the planning phase. Additional regulatory permits will be required from the Regional Water Quality Control Board, the California Department of Fish & Game, and from the US Army Corps of Engineers with consultation by the USFWS and NOAA Fisheries.

This alternative will likely require mitigation for project impacts that would be identified.

F. Cost Estimate

The preliminary capital cost estimate for this alternative is about $540-$560 million. This figure includes costs for construction, bridge replacements, real estate acquisition, and utility relocation (see Table 2-2).

G. Technical Feasibility

This alternative is technically feasible. If a decision is made to pursue this alternative, the feasibility of obtaining adjacent right-of-way and appropriate mitigation will have to be assessed.

2.3 Alternative C (Utilization of 100-Ft. Setback for Bench)

A. Alternative Description

This alternative includes floodwall/levee construction and creek widening to increase the creek capacity for the 100-year design flow. Most creek widening would be done within the 100-ft. riparian corridor setbacks dedicated by the developers to the City of San Jose, where feasible, and within public owned properties. In the residential area, floodwalls/levees would be preferred to minimize real estate acquisition. Five bridges at Charcot Ave, Julian Street, Santa Clara Street, San Antonio Street, and William Street would need to be replaced to provide sufficient freeboard for the design flow.

Channel widening would excavate the upper slopes of the existing creek banks to create floodplain benches at a bankfull flow elevation which is approximately 4 feet above the creek invert. The floodplain is designed to ensure sediment transport continuity within the low flow channel and to greatly reduce the shear stresses where high velocities during flood flows are likely to cause erosive conditions.

The levee would be 20-feet wide on the top of the levee with a ratio of 2:1 on the side slopes.

Existing creek-side vegetation would be removed during the creek widening, and newly formed benches would be replanted with native vegetations. The vegetation removed for construction of levees and floodwalls would be mitigated either onsite or offsite.

To provide access for the inspection and maintenance, twenty-foot wide maintenance road would be located on top of newly excavated banks, or on the top of flood levees. A reach by reach improvement description of this alternative follows (see Fig. Alt. C).

Reaches 4 and 5 (Montague Expressway to Interstate 880)

In these reaches, 1–9 ft. high floodwalls would be installed at back of the existing levees which are the limits of District's right-of-way, to increase the creek capacity to the design flow and provide sufficient freeboard. A continuous 20-ft. wide maintenance road would be constructed at the inboard side of the floodwalls. There would not be any improvement within the creek. The existing vegetations in the creek would be kept intact. Fig. 2-7 is a typical cross section for this reach.

Charcot Ave Bridge would be replaced to provide conveyance with a required freeboard and to accommodate the construction of floodwalls. A cost-share agreement on the bridge replacement would be coordinated with the City of San Jose.

Reaches 6 and 7 (Interstate 880 to Old Oakland Road)

Improvements would include 100–ft wide floodplain benches on the east bank between Brokaw Road and Old Oakland Road, and on the west bank between Brokaw Road and Ridder Park Drive. An about 6–ft. high levee would be installed on the west bank between Interstate 880 and Brokaw Road, and between Brokaw Road and Ridder Park Drive. A 2–4 ft. high floodwall would be installed on the east bank between Interstate 880 and UPRR. Maintenance road would be constructed at the top of the excavated banks, and/or on top of the flood levees. No maintenance road will be installed on the west bank between Interstate 880 and Brokaw Road due to space constraints (see Fig 2-2).

The bridge at Ridder Park Drive and UPRR trestle would be left in place but the bridge openings would be widened to accommodate the floodplain bench excavation at upstream and downstream ends. The widening would expose some of the bridge piers. To avoid any damage on the piers, further investigations need to be done to identify the actual elevations of the bridge pile caps.

Reach 8a (Old Oakland Road to San Jose Municipal Golf Course)

This reach has a wide floodplain on both banks; therefore, there is no channel improvement in this alternative. The existing levee on west bank would be raised up to 1–3 ft. to meet freeboard requirement, and a maintenance road would be constructed on the top of the raised levee.

Reach 8b (San Jose Municipal Golf Course to Berryessa Road)

Improvements for these reaches include floodplain bench excavation and levee/floodwall construction. A 100–ft. wide flood bench would be excavated on the east bank with 10–12 ft. high levee constructed on the west bank and a 4-ft. high, about 20–30 feet long floodwall would be required on the northern edge of the flea market parking lot to protect existing houses. Maintenance road would be constructed on the excavated banks and on the top of flood levees. Fig. 2-8 is a typical cross section for this reach.

Reach 9 (Berryessa Road to Mabury Road)

Improvements for this reach are similar to those described for Reach 8b except for 150-ft. wide floodplain bench would be excavated on the east bank with 5-10 ft. high levee constructed on the west bank (see Fig. 2-8).

Reach 10 (Mabury Road to Hwy 101)

In this reach, a 100-ft. wide floodplain bench with a 7–10 ft. high levee would be constructed on west bank. A 5–6 ft. high levee would be installed on the east bank. Maintenance roads would be constructed on the excavated banks and on top of the flood levees (see Fig. 2-9).

Reach 11a (Hwy 101 to Lower Silver Creek)

Improvements include levees along the top of the bank to retain the flood within the creek. A 4–18 ft. high levee would be required on the east bank and 4–16 ft. high levee on the west bank. Maintenance road would be constructed on top of the flood levees (see Fig. 2-10).

Reach 11b (Lower Silver Creek to Julian Street)

Improvements would include excavation of a 130–ft. wide floodplain bench on the east bank and construction of levees on the east and west banks. A 4–11 ft. high levee would be installed on the east bank and a 6–8 ft. levee on the west bank. A 7-ft. high floodwall would be constructed on the both banks near the Lower Silver Creek confluence because there is inadequate space to construct a levee. Maintenance road would be constructed on the excavated banks or on top of the flood levees (see Fig. 2-11).

The Julian Street Bridge would be replaced to convey the project design flow with appropriate freeboard.

Reach 12 (Julian Street to Santa Clara Street)

In this reach, a 100–ft. wide floodplain bench would be excavated on the east bank and a 4–22 ft. high levee would be constructed on the east and west bank. The bench excavation would start at the upstream end of the high school building due to limited space between the creek and the school building and end at Santa Clara Street Bridge. Maintenance road would be constructed on the newly excavated banks or on top of the flood levees (see Fig. 2-11).

The Santa Clara Street Bridge would be replaced to convey the project design flow.

Reach 13 (Santa Clara Street to William Street)

The improvements would include levee construction at the east and west banks and the replacement of San Antonio and William Street bridges. The existing riparian corridor would be kept intact since the improvement would be limited to the top of banks. Maintenance road would be constructed on top of the flood levees (see Fig. 2-10).

Reach 14 (William Street to Interstate 280)

Excavate 150-ft. wide floodplain benches alternating from west to east banks in the creek near William Street Park and Selma Olinder Park to minimize impact to the residential area. Also, flood levees on the east and west top of excavated banks would be constructed. The height of levee would vary from 5–22 ft. Maintenance road would be constructed on top of the flood levees (see Fig. 2-5).

B. Project Objectives

A summary of the alternative's effectiveness to meet project objectives follows.

Objective 1: Provide 1% Flood Protection

This alternative would meet the objective of providing flood protection by widening the creek and installing flood walls/levees to increase channel capacity for the 100–year design flow. The hydraulic modeling indicates that the improved channel would have sufficient capacity for the 100–year flow and meet freeboard requirements.

Objective 2: Identify Stream Habitat Enhancement and/or Restoration Opportunities

The Alternative C would create opportunities to enhance ecological stream functions by widening the creek and removing the dense and invasive vegetations on the creek side.

This alternative would improve the quality and quantity of habitat and connectivity with the newly created flood benches. Increased quantity of habitat may offset the habitat connectivity issues associated with floodwall construction. The habitat would be improved owing to improved sediment transport by the creek widening.

The removal of the dense creek side vegetation for creation of the floodplain benches would improve the light penetration to the heavily shaded corridor. Solar radiation is necessary for photosynthesis by attached algae and is an integral part of stream ecosystem function.

Objective 3: Identify Opportunities to Improve Water Quality

This alternative may create opportunity to slightly improve water quality by increasing the sediment transport capacity through changes in the current channel geometry. The enlarged channel would slow down the sediment transport and cause deposition of sediments, that has a potential to change pool-riffle reaches and may improve water quality.

The opportunities to improve water quality may also occur through managed vegetations on floodplain benches. This alternative would allow for the District to coordinate with the City to improve the control of non-point source pollutants, trash and debris that enter the stream by modification of the cities drainage outfalls. Improved access to the creek through the addition of maintenance roads, would allow the District to better address trash and debris issues within the creek corridor that leads to degraded water quality conditions.

Objective 4: Identify Opportunities to Provide Public Recreation and Access

This alternative would identify opportunities to provide public recreation and access by incorporating new maintenance roads and CSJ's Master Trail Plan in the study.

Objective 5: Minimize the Need for Future Operation and Maintenance Activities and Create a Self-Sustaining System

Current operation and maintenance practices would be expanded to include the new facilities provided by this alternative. Typical maintenance activities will include vegetation management in the lower floodplain benches, vegetation (overgrowth) removal, erosion repair in natural sections, sediment removal, trash and debris removal, and graffiti removal. The new maintenance road/trails will give the District staff accesses to the creek and provide services to the community.

The new facilities described in this alternative would drastically increase the annual operations and maintenance costs compared to the existing conditions because of the additional right of way and maintenance requirements of the constructed improvements. The addition of maintenance roads/trails, levees, floodwalls and flood benches will require routine maintenance such as herbicide application, trimming and vegetation removal, invasive plant species removal and animal control, levee/bank/channel repairs, removing sediment, and graffiti removal. However, it is also expected that the multi-staged channel in this alternative will allow for natural river processes to transport sediment and scour vegetation from the low flow channel, effectively reducing the amount of sediment removal and vegetation management activities required to maintain the channel to design capacity.

For this alternative, it is anticipated with increased public access and maintenance roads that the District's cost for trash and debris removal would also increase considerably due to greater public awareness of trash and debris within the channel. Coordination with the City of San Jose on redesigning the drainage networks to Coyote Creek may alleviate some costs for trash removal in the creeks if the drainage networks are outfitted with debris collection devices. Additionally, opening up the creek corridor through creation of flood benches may decrease the number of homeless encampments that are currently found within the project limits.

The excavated floodplain benches would effectively convey high flows and dissipate energy on the flood benches. With an adequately sized bankfull channel, it is anticipated that the channel maintenance associated with deposition of sediment will be more cost effective than the existing channel configuration.

Objective 6: Obtain Community Support

The Mid-Coyote Creek flood protection project is funded for design and partial construction under the Clean, Safe Creek Program to design a project that would provide environmental quality, community benefit and protection from creek flooding in a cost effective manner. This is accomplished through integrated planning and management that considers the physical, hydrologic and ecologic functions and processes of streams within the community setting.

Some local residents have expressed objection over this alternative which requires land acquisition from creek side residents. Through continued outreach and open house meetings with all affected community members, the District anticipates finding an alternative which fulfills our commitment to the voters of Santa Clara County.

C. Real Estate Needs

This alternative has assumed that the 100–ft. creek corridor set back would be possible for the District to use. The District retains limited Fee, Deed, and easement right-of-way within the project area and more land rights would be needed for the improvements. This alternative would need 187 acres of right-of-way.

Reaches 4 and 5

The improvements in this area would be performed within the existing SCVWD right-of-way; therefore, there is no need to acquire additional real estate.

Reaches 6 and 7

There is a newly developed retail center on the west bank between Brokaw Road and Ridder Park Drive. The developer has dedicated 100' riparian corridor setback to the City of San Jose. On the east bank, there is a vacant open-space area that is under planning to be developed. The District staff has coordinated with the City of San Jose to implement its riparian setback policy on these two properties. Based on staff discussions it was determined that the proposed floodplain bench and flood protection improvements can be constructed within this area.

Reach 8a

About 1 acre of land would be acquired from the City of San Jose to raise the existing levee.

Reach 8b

The San Jose Flea Market property is located on the east bank of the creek. The Flea Market site was recently proposed for development and planning documents were submitted to the City of San Jose. During the public review and comment period for the proposed development, District staff provided comments to the City Planning Department identifying the need to coordinate the proposed development with future flood control improvements (excavated floodplain bench) to avoid land use conflicts.

The floodplain benches and levees would require about 3 acres of real estate from adjacent parcels currently used for industrial purposes, some of which include operational facilities for businesses.

Reach 9

As in Reach 8b, similar efforts were made to coordinate with the City of San Jose for real estate needs along the east bank of the creek where the proposed development is planned at the existing Flea Market site.

The floodplain benches and levees would require about 10 acres of real estate from adjacent parcels currently used for industrial purposes.

Reach 10

The floodplain benches and levees would require about 9.4 acres of real estate from adjacent parcels currently used by the City of San Jose as a corporation yard on the east bank and for industrial purposes on the west bank.

Reach 11a

Approximately 9.4 acres of real estate would be acquired from the City of San Jose's Watson Park.

Reach 11b

The District has fee title between the Lower Silver Creek confluence and the property of the San Jose Academy on east bank. The 130–ft. wide floodplain bench would be excavated within this right-of-way. Between the high school and the creek, the District has a narrow strip of easement on top of the east bank on high school site. Additional right-of-way would be required from the San Jose

Academy for the bench excavation. Also, on the west bank, right-of-way would be acquired from property owners for construction of the levee. A cost-share agreement with City of San Jose on the bridge replacement would be coordinated.

The floodplain benches and the levee would require about 3.4 acres of real estate from the San Jose Unified School District and 17 houses from private residences situated on the east and west banks respectively.

Reach 12

The improvements in this reach would require additional right of way to be purchased from the high school. A cost-share agreement on the bridge replacement would be coordinated with the City of San Jose.

The floodplain benches and the levee would require about 7 acres of real estate from the San Jose Unified School District and 22 houses from private residences situated on the east and west banks respectively.

Reach 13

This reach is located in a very dense and high value residential area. Right-of-way acquisition for 2.5 acres of public land from City of San Jose and 79 houses from private residents would be needed for the construction of the levees.

Reach 14

The levee and floodplain benches construction would require land rights to be purchased from six private parcels and City of San Jose for 13.6 acres situated along the creek.

D. Cost Estimate

The preliminary capital cost estimate for this alternative is approximately $480-$500 million. This figure includes costs for construction, bridge replacements, real estate acquisition, and infrastructure utilities relocation (see Table 2-2).

E. Additional Project Considerations

Floodplain bench excavation activity along the project area is likely to intersect hazardous soils based on our preliminary HAZMAT study.

F. Technical Feasibility

This alternative is technically feasible. If a decision is made to pursue this alternative, the feasibility of obtaining adjacent right-of-way and appropriate mitigation will have to be assessed.

2.4 Alternative D (Creek Invert Reprofile to 0.3%, 0.035%)

A. Alternative Description

Historical subsidence has flattened the creek, especially between Berryessa Road and I-280, reduced creek hydraulic capacity, and caused poor water quality. In this alternative, other than floodplain benches and flood levees/ floodwalls, the creek invert slop would also be reshaped to 0.035% from I-280 to Berryessa Road and to 0.3% from Berryessa Road to Old Oakland Road. The channel inverts reshaping would reduce stagnant water, increase creek's hydraulic conveyance, and improve water quality and wild life habitat conditions in the upstream reaches.

In resulting of this channel invert reshaping, the creek at some locations would be excavated up to 4-feet deep. To ensure a stable channel, when the channel is deepened, the width of channel is also widened at an elevation of bankful flow to provide floodplain. The existing vegetation in the channel and on the bank would be removed during the channel widening and newly formed benches would be replanted with native vegetations. The vegetation removed for construction of levees and floodwalls would be mitigated either onsite or offsite.

To provide access for the inspection and maintenance, twenty-foot wide maintenance road would be located on top of newly excavated banks, or on the top of flood levees. A reach by reach improvement description of this alternative follows (see Fig. Alt. D).

Reaches 4-7 (Montague Expressway to Old Oakland Road)

The improvements would be similar to those in Alternative C.

Reach 8a-8b (Old Oakland Road to Berryessa Road)

The creek invert would be reshaped to 0.3%. In Reach 8a, the existing levee by the manufactured home park on the west bank would be raised by about 1–3 ft. In Reach 8b, a 100-ft. flood bench would be excavated on the east bank and a 6-10 ft. high levee would be constructed on the west bank. Maintenance road would be constructed on the excavated banks, at the top of banks, and/or on the flood levees (see Fig. 2-12)

At some locations, the creek would be excavated as much as 4-ft. deep. The excavation at Berryessa Road Bridge might impact on bridge pile caps and this needs to be evaluated further if this alternative is determined to move forward to the feasible stage.

Reach 9 (Berryessa Road to Mabury Road)

The creek slope would have a grade break at Berryessa Road Bridge and be reshaped to 0.035% starting at the bridge. In addition, the improvements would include a 150 feet floodplain excavation on the west side of creek and a 2–8 feet high flood levee on the west bank. Maintenance road would be constructed on the excavated banks, at the top of banks, and/or on the flood levees (see

Fig. 2-12). Creek deepening in Coyote Creek at confluence of Upper Penn and Coyote would impact Upper Penn Creek invert; therefore, coordination with Upper Penitencia Creek Project would be needed if this alternative is moved to the feasilble stage. The deepening would also entail relocation of the SCVWD large diameter, high pressure Central Pipeline which crosses Coyote Creek at a location just downstream of Mabury Road.

Reach 10 (Mabury Road to Hwy 101)

The channel invert reshaping would continue through Reach 10 at a slope of 0.035%. A 100-ft. wide floodplain bench with a 4–7 ft. high levee would be on west bank. A 1–3 ft. high floodwall would be constructed on the east bank. Maintenance road would be constructed on the excavated banks, at the top banks, and/or on the flood levees (see Fig. 2-13).

The excavations at Mabury Road Bridge and Hwy 101 bridge might impact on bridge pile caps and this needs to be evaluated further if this alternative is determined to move forward to the feasible stage.

Reach 11a (Hwy 101 to Lower Silver Creek)

The channel invert would continue to be at a slope of 0.035%. Levees would be constructed along the top of the both east and west bank to retain the flood within the creek. A 4–13 ft. high levee would be required on the east bank and a 9-14 ft. levee on the west bank. Maintenance road would be constructed on top of the flood levees (see Fig. 2-14).

Reach 11b (Lower Silver Creek to Julian Creek)

The new channel slope would still be 0.035%. The improvements also include excavation of a 130 ft. floodplain bench and construction of a 7 ft. levee on the east bank. A 4–5 ft. high floodwall would be installed on the west bank. A 7-ft. high floodwall would be installed along the perimeter of the Lower Silver Creek confluence because there is inadequate space to construct a levee.

Maintenance road would be constructed on the excavated banks or on top of the flood levees (see Fig. 2-15).

Reach 12 (Julian Street to Santa Clara Street)

The new channel slope would still be 0.035%. On east bank, a 100-ft. wide floodplain bench would be excavated and a 5-13 ft. high levee would be constructed at upstream end. As for west bank, a 100-ft. wide floodplain would only be excavated near downstream end and a 5–ft. high floodwall would be constructed partially. Maintenance road would be constructed on the excavated banks or on top of the flood levees (see Fig. 2-15).

Reach 13 (Santa Clara Street to William Street)

The new creek slope of 0.035% would continue through this reach. The improvements in this reach also include 30-ft. wide floodplain excavation on both sides of the creek and partial levee constructions at top of the west bank. The levee height would vary between 3 and 14 ft.

Maintenance road would be constructed on the top of banks or the top of the flood levees (see Fig.2-16).

Reach 14 (William Street to Interstate 280)

The channel reshape would end at about 700 feet upstream of William Street bridge. Other improvements would include approximately 150 ft. floodplain bench alternating between east and west banks in the creek near William Street Park and Selma Olinder Park and flood levees on the east and west top of banks. Levees would vary from 4 to 17 ft. in height. Maintenance road would be constructed on top of the flood levees (see Fig. 2-5).

B. Project Objectives

This alternative would protect homes, schools, businesses, and public facilities along the project area from 100-year flood. Channel widening at Reaches 6 and 7 would slow the water velocity in the channel and reduce erosion possibility. The steepened channel bottom would accelerate water moving in the upper stream pool area and thus improve water quality. Access road for trail and/or maintenance would be provided along the entire project area. Project impacts would be mitigated.

A summary of the alternative's effectiveness to meet project objectives follows.

Objective 1: Provide 1% Flood Protection

This alternative would meet the objective of providing flood protection by widening the creek, reshaping channel inverts, and installing flood walls/levees to increase channel capacity for the 100-year design flow. The hydraulic modeling indicates that the improved channel would have sufficient capacity for the 100-year flow and meet freeboard requirements.

Objective 2: Identify Stream Habitat Enhancement and/or Restoration Opportunities

This alternative would provide stream habitat enhancement and restoration opportunities by widening the creek, reshaping the creek inverts, and removing the invasive creek side vegetation.

The habitat would be improved owing to improved sediment transport by the creek widening and invert reshaping. The excavated floodplain benches would effectively convey high flows and dissipate energy on the flood benches.

The removal of the dense creek side vegetation for creation of the floodplain benches would improve the light penetration to the heavily shaded corridor. Solar radiation is necessary for photosynthesis by attached algae and is an integral part of stream ecosystem function.

Objective 3: Identify Opportunities to Improve Water Quality

The Alternative D would provide opportunities to improve water quality through reshaping the channel inverts. The current stagnant water would no longer exist. The sediment transport might benefit from the reshaping and further improve the instream habitat conditions by changing pool-riffle reaches.

This alternative would also allow for the District to coordinate with the City to improve the control of non-point source pollutants, trash and debris that enter the stream by modification of the cities drainage outfalls. Improved access to the creek through the addition of maintenance roads, would allow the District to better address trash and debris issues within the creek corridor that leads to degraded water quality conditions.

Objective 4: Identify Opportunities to Provide Public Recreation and Access

This alternative would identify opportunities to provide public recreation and access by incorporating new maintenance roads and CSJ's Master Trail Plan in the study.

Objective 5: Minimize the Need for Future Operation and Maintenance Activities and Create a Self-Sustaining System

Current operation and maintenance practices would be expanded to include the new facilities provided by this alternative. Typical maintenance activities will include vegetation management in the lower floodplain benches, vegetation (overgrowth) removal, erosion repair in natural sections, sediment removal, trash and debris removal, and graffiti removal. The new maintenance road/trails will give the District staff accesses to the creek and provide services to the community.

The new facilities described in this alternative would drastically increase the annual operations and maintenance costs compared to the existing conditions because of the additional right of way and maintenance requirements of the constructed improvements. The addition of maintenance roads/trails, levees, floodwalls and flood benches will require routine maintenance such as herbicide application, trimming and vegetation removal, invasive plant species removal and animal control, levee/bank/channel repairs, removing sediment, and graffiti removal. However, it is also expected that the multi-staged channel in this alternative will allow for natural river processes to transport sediment and scour vegetation from the low flow channel, effectively reducing the amount of sediment removal and vegetation management activities required to maintain the channel to design capacity.

For this alternative, it is anticipated with increased public access and maintenance roads that the District's cost for trash and debris removal would also increase considerably due to greater public awareness of trash and debris within the channel. Coordination with the City of San Jose on redesigning the drainage networks to Coyote Creek may alleviate some costs for trash removal in the creeks if the drainage networks are outfitted with debris collection devices. Additionally, opening up the creek corridor through creation of flood benches may decrease the number of homeless encampments that are currently found within the project limits.

With an adequately sized bankfull channel, it is anticipated that the channel maintenance associated with deposition of sediment will be more cost effective than the existing channel configuration.

Objective 6: Obtain Community Support

The Mid-Coyote Creek flood protection project is funded for design and partial construction under the Clean, Safe Creek program to design a project that would provide environmental quality, community benefit and protection from creek flooding in a cost effective manner. This is accomplished through integrated planning and management that considers the physical, hydrologic and ecologic functions and processes of streams within the community setting.

Some local residents have expressed disagreement over this alternative which requires land acquisition from creek side residents. Through continued outreach and open house meetings with all affected community members, the District anticipates finding an alternative which fulfills our commitment to the voters of Santa Clara County.

C. Real Estate Needs

This alternative has taken the possible 100-ft. creek corridor set back, enforced by the City of San Jose, into the consideration to minimize future land acquisition. The District retains limited Fee, Deed, and easement right-of-way within the project area. This alternative would need 162 acres of right-of-way.

Reaches 4 through 7

The need for real estate acquisition is similar to that described in the Alternative C,

Reach 8a

The raised levee would need about 2.4 acres of land acquired from the City of San Jose.

Reach 8b

The San Jose Flea Market property is located on the east bank of the creek in Reach 8b. The Flea Market site was recently proposed for development and planning documents were submitted to the City of

San Jose (City). During the public review and comment period for the proposed development, District staff provided comments to the City Planning Department identifying the need to coordinate the proposed development with future flood control improvements (excavated floodplain bench) to avoid land use conflicts.

The floodplain benches and levees would require about 3.6 acres of real estate from adjacent parcels currently used for industrial purposes, some of which include operational facilities for businesses.

Reach 9

As in Reach 8b, similar efforts were made to coordinate with the City of San Jose for real estate needs along the east bank of the creek where the proposed development is planned at the existing Flea Market site.

The floodplain benches and levees would require about 5.6 acres of real estate from adjacent parcels currently used for industrial purposes.

Reach 10

The floodplain benches and levees would require about 7 acres of real estate from adjacent parcels currently used by the City of San Jose as a corporation yard on the east bank and for industrial purposes on the west bank.

Reach 11a

Approximately 8.2 acres of real estate would be acquired from the City of San Jose's Watson Park.

Reach 11b

The District has fee title between the Lower Silver Creek confluence and the downstream end of the San Jose Academy property on east bank. The 130-ft. wide floodplain bench would be excavated within this right-of-way. Between the high school and the creek, the District also has a narrow strip of easement on the east bank. Additional right-of-way would be required from the San Jose Academy for the bench excavation. On the west bank, right-of-way would be acquired from property owners for construction of the floodwall.

Approximately 4.4 acres of public land and private land and five houses would be acquired from property owners adjacent to the creek.

Reach 12

The improvements in this reach would require additional right of way to be purchased from the high school.

The floodplain benches and the levee would require about 6.5-acres of real estate from the San Jose Unified School District and 22 houses from private residences situated on the east and west banks respectively.

Reach 13

This reach is located in a very dense and high value residential area. Right-of-way acquisition for 4.6 acres of public land from City of San Jose and 57 houses from private residents would be needed for the construction of the levees.

Reach 14

The levee and floodplain benches construction would require land rights to be purchased from 6 private parcels and City of San Jose for 17.4 acres situated along the creek.

D. Cost Estimate

The preliminary capital cost estimate for this alternative is approximately \$520-\$530 million. This figure includes costs for construction, bridge replacements, real estate acquisition, and infrastructure utilities relocation (see Table 2-2).

E. Additional Project Considerations

Floodplain bench excavation activity along the project area is likely to intersect hazardous soils based on our preliminary HAZMAT study.

F. Technical Feasibility

This alternative is technically feasible. If a decision is made to pursue this alternative, the feasibility of obtaining adjacent right-of-way and appropriate mitigation will have to be assessed.

2.5 Alternative E (Creek Invert Reprofile – 0.3%, 0.07%)

A. Alternative Description

This alternative is similar to Alternative D, except that the creek channel slope would be reshaped to 0.07% from I-280 to upstream end of San Jose Municipal Golf Course, and to 0.3% from upstream end of San Jose Municipal Golf Course to Old Oakland Road. When the channel is steepened, the width of channel is also widened with benches on both banks at an elevation of bankfull to provide floodplain. At some locations, the deepening of the creek would cause channel excavation as deep as 10 ft. The excavations at Berryessa Road Bridge, Mabury Road Bridge, Highway 101, and Julian Street Bridge might impact on bridge pile caps and the impact will need to be evaluated if this alternative is selected to the next study phase.

Excavation in Coyote Creek would cause inverts drop at confluences with Upper Penitencia Creek and Lower Silver Creek. Coordination with Upper Penitencia Creek Project would be needed. The creek improvement at lower portion of Lower Silver Creek has been completed. A hydraulic drop structure at the confluence may need to be considered in the future design.

The existing vegetation in the channel and on the bank would be removed during the channel widening and newly formed benches would be replanted with native vegetations. The vegetation removed for construction of levees and floodwalls would be mitigated either onsite or offsite.

To provide access for the inspection and maintenance, twenty-foot wide maintenance road would be located on top of newly excavated banks, or on the top of flood levees. A reach by reach description of this alternative follows (see Fig. Alt. E).

Reaches 4-7 (Montague Expressway to Old Oakland Road)

The improvements are the same as Alternative C. There is no improvement on creek invert slope.

Reach 8a (Old Oakland Road to Upstream San Jose Municipal Golf Course)

The creek would be reshaped to 0.3% starting at Old Oakland Road Bridge. At some locations, the creek would be excavated as much as 4 ft. The existing levee by the manufactured home parks on the west bank would be raised by 1-3 ft. to meet the required freeboard. Maintenance road would be constructed on the excavated banks, at the top of banks, and/or on the flood levees (see Fig. 2-17).

Reach 8b (Upstream San Jose Municipal Golf Course to Berryessa Road)

The creek would be reshaped to 0.07% starting at upstream end of San Jose Municipal Golf Course. The improvements also include 100-ft. wide flood bench on east bank and a 6–10 ft. high levee on the west bank. Maintenance road would be constructed on the excavated banks and on the flood levees (see Fig. 2-12).

The channel deepening and widening at Berryessa Road Bridge might impact on bridge pile caps and this would need to be evaluated further if this alternative is determined to move forward to the feasible stage.

Reach 9 (Berryessa Road to Mabury Road)

The creek would be reshaped to 0.07% in this reach and 150-ft. wide floodplain bench would be excavated on the east bank with approximately 3–6 ft. high levee constructed on partial of the west bank. Maintenance road would be constructed on the excavated banks and on the flood levees (see Fig. 2-12).

The channel deepening and widening at Mabury Road Bridge might impact on bridge pile caps.

Due to the channel deepening, this alternative would also entail relocation of the SCVWD large diameter, high pressure Central Pipeline which crosses Coyote Creek at a location just downstream of Mabury Road.

Reach 10 (Mabury Road to Hwy 101)

The creek invert slope would still kept at 0.07% and 150–ft. wide flood bench would be excavated on the west bank with a floodwall about 4-ft. tall installed on the west bank. Maintenance road would be constructed on the excavated bank and on the existing bank (see Fig. 2-18).

The channel deepening and widening at Hwy 101 Bridge might impact on bridge pile caps.

Reach 11a (Hwy 101 to Lower Silver Creek)

The improvements in this reach include a reshaped creek slope at 0.07%, a 9-10 ft. high levee on the west bank, and an 8–11 ft. high levee on the east bank. Maintenance road would be constructed on the excavated bank and on the existing bank (see Fig. 2-19).

Reach 11b (Lower Silver Creek to Julian Street)

Other than the channel slope modification, creek would be excavated on the east bank to form a 130-feet wide floodplain bench. A 7–ft. high floodwall would be installed along the perimeter of the Lower Silver Creek confluence because there is inadequate space to construct a levee. Maintenance road would be constructed on the existing or excavated banks (see Fig 2-20).

Reaches 12–13 (Julian Street to William Street)

The creek would continue the reshaped slope through William Street bridge. In most locations, the existing channel would be deepened by 2-4 feet. Other than channel slope modification, 150 feet wide floodplain benches would also excavated on both east and west banks. As a result of slope steepening and channel widening, the water surface elevation for the design flow would be lowered and no levees would be needed in majority of Reaches 12 and 13, except for a location near the William Street Bridge. Maintenance road would be constructed on the top of excavated banks (see Fig. 2-21).

Reach 14 (William Street to Interstate 280)

A 150–ft. wide flood bench would be excavated alternating between east and west bank with 4–14 ft. levee constructed on top of both banks to protect the Selma Olider Park and William Street Park from flooding. Maintenance road would be constructed on the top of levees and top of excavated banks (see Fig. 2-5).

B. Project Objectives

A summary of the alternative's effectiveness to meet project objectives follows.

Objective 1: Provide 1% Flood Protection

This alternative would meet the objective of providing flood protection by widening the creek, reshaping channel inverts, and installing flood walls/levees to increase channel capacity for the 100-year design flow. The hydraulic modeling indicates that the improved channel would have sufficient capacity for the 100-year flow and meet freeboard requirements.

Objective 2: Identify Stream Habitat Enhancement and/or Restoration Opportunities

This alternative would provide stream habitat enhancement and restoration opportunities by widening the creek, reshaping the creek inverts, and removing the invasive creek side vegetation.

The habitat would be improved owing to improved sediment transport by the creek widening and invert reshaping. The excavated floodplain benches would effectively convey high flows and dissipate energy on the flood benches.

The removal of the dense creek side vegetation for creation of the floodplain benches would improve the light penetration to the heavily shaded corridor. Solar radiation is necessary for photosynthesis by attached algae and is an integral part of stream ecosystem function.

Objective 3: Identify Opportunities to Improve Water Quality

Alternative D would provide opportunities to improve water quality through reshaping the channel inverts. The current stagnant water would no longer exist. The sediment transport might benefit from the reshaping and further improve the instream habitat conditions by changing pool-riffle reaches.

This alternative would also allow for the District to coordinate with the City to improve the control of non-point source pollutants, trash and debris that enter the stream by modification of the cities drainage outfalls. Improved access to the creek through the addition of maintenance roads, would allow the District to better address trash and debris issues within the creek corridor that leads to degraded water quality conditions.

Objective 4: Identify Opportunities to Provide Public Recreation and Access

This alternative would identify opportunities to provide public recreation and access by incorporating new maintenance roads and CSJ's Master Trail Plan in the study.

Objective 5: Minimize the Need for Future Operation and Maintenance Activities and Create a Self-sustaining System

Current operation and maintenance practices would be expanded to include the new facilities provided by this alternative. Typical maintenance activities will include vegetation management in the lower floodplain benches, vegetation (overgrowth) removal, erosion repair in natural sections, sediment removal, trash and debris removal, and graffiti removal. The new maintenance road/trails will give District staff accesses to the creek and provide services to the community.

The new facilities described in this alternative would drastically increase the annual operations and maintenance costs compared to the existing conditions because of the additional right of way and maintenance requirements of the constructed improvements. The addition of maintenance roads/trails, levees, floodwalls and flood benches will require routine maintenance such as herbicide application, trimming and vegetation removal, invasive plant species removal and animal control, levee/bank/channel repairs, removing sediment, and graffiti removal. However, it is also expected that the multi-staged channel in this alternative will allow for natural river processes to transport sediment and scour vegetation from the low flow channel, effectively reducing the amount of sediment removal and vegetation management activities required to maintain the channel to design capacity.

For this alternative, it is anticipated with increased public access and maintenance roads that the District's cost for trash and debris removal would also increase considerably due to greater public awareness of trash and debris within the channel. Coordination with the City of San Jose on redesigning the drainage networks to Coyote Creek may alleviate some costs for trash removal in the creeks if the drainage networks are outfitted with debris collection devices. Additionally, opening up the creek corridor through creation of flood benches may decrease the number of homeless encampments that are currently found within the project limits.

Objective 6: Obtain Community Support

The Mid-Coyote Creek flood protection project is funded for design and partial construction under the Clean, Safe Creek program to design a project that would provide environmental quality, community benefit and protection from creek flooding in a cost effective manner. This is accomplished through integrated planning and management that considers the physical, hydrologic and ecologic functions and processes of streams within the community setting.

Some local residents have expressed disagreement over this alternative which requires land acquisition from creek side residents. Through continued outreach and open house meetings with all affected community members, the District anticipates finding an alternative which fulfills our commitment to the voters of Santa Clara County.

C. Real Estate Needs

This alternative has taken the possible 100–ft. creek corridor set back, enforced by the City of San Jose, into the consideration to minimize future land acquisition. The District retains limited Fee, Deed, and easement right-of-way within the project area. This alternative would need 192 acres of right-of-way.

Reaches 4–7

The need for real estate acquisition is similar to that described in the Alternative C,

Reach 8a

The raised levee would need about 12.4 acre of land acquired from the City of San Jose.

Reach 8b

The floodplain benches and levees would require about 3.5 acres of real estate from adjacent parcels currently used for industrial purposes, some of which include operational facilities for businesses.

Reach 9

The floodplain benches and levees would require about 2.5 acres of real estate from adjacent parcels currently used for industrial purposes.

Reach 10

The floodplain benches and levees would require about 7.3 acres of real estate from adjacent parcels currently used by the City of San Jose as a corporation yard on the east bank and for industrial purposes on the west bank.

Reach 11a

Approximately 8.2 acres of real estate would be acquired from the City of San Jose's Watson Park.

Reach 11b

Approximately 4.7 acres of public land and private land and 6 houses would be acquired from property owners adjacent to the creek.

Reach 12

The floodplain benches would require about 11.2 acres of real estate from the San Jose Unified School District and 31 houses from private residences situated on the east and west banks respectively.

Reach 13

Right-of-way acquisition for 2.3 acres of public land from City of San Jose and 84 houses from private residents would be needed for the creek deepening and widening.

Reach 14

The levee and floodplain benches construction would require land rights to be purchased from two private parcels and City of San Jose for 14.3 acres situated along the creek.

D. Cost Estimate

The preliminary capital cost estimate for this alternative is approximately $590-$610 million. This figure includes costs for construction, bridge replacements, real estate acquisition, and infrastructure utilities relocation (see Table 2-2).

E. Additional Project Considerations

Floodplain bench excavation activity along the project area is likely to intersect hazardous soils based on our preliminary HAZMAT study.

F. Technical Feasibility

This alternative is technically feasible. If a decision is made to pursue this alternative, the feasibility of obtaining adjacent right-of-way and appropriate mitigation will have to be assessed.

2.6 Alternative F (Creek Invert Reprofile—0.28%, 0.07%)

A. Alternative Description

This alternative is similar to Alternatives D and E, except that the creek channel slope would be reshaped to 0.07% from I-280 to Berryessa Road bridge, and to 0.28% Berryessa Road bridge to Old Oakland Road. To ensure a stable channel, when the channel is steepened, the width of channel is also widened with benches on both banks at an elevation of bankful flow to provide floodplain. At some locations, the deepening of the creek would cause channel excavation as deep as 10 ft. The excavations at Berryessa Road Bridge, Mabury Road Bridge, Highway 101, and Julian Street Bridge might impact on bridge pile caps and the impact would need to be evaluated if this alternative is selected to the next study phase.

Invert excavation in Coyote Creek would cause inverts drop at confluences with Upper Penitencia Creek and Lower Silver Creek. Coordination with Upper Penitencia Creek Project would be needed. The creek improvement at lower portion of Lower Silver Creek has been completed. A hydraulic drop structure at the confluence may need to be considered in the future design.

To allow for inspection and maintenance of the new features of this alternative, twenty foot wide maintenance roads would be located along the top of newly excavated banks where floodplain benches have been constructed, or along the inboard side of all floodwalls on top of levees when possible.

Existing creek-side vegetation would be removed during the creek invert modification, and newly formed benches would be replanted with native vegetation. A reach by reach description of this alternative follows (see Fig. Alt. F).

Reaches 4-5 (Montague Expressway to Interstate 880)

The improvements would be the same as those described in Alternative C.

Reaches 6-7 (Interstate 880 to Old Oakland Road)

The improved creek would have a slope of 0.28% starting at UPRR trestle. To contain the design flow into the channel, a continuous levee ranging from 2 to 9 feet in height would be constructed on the east bank from Old Oakland Road to Interstate 880.and partial floodwalls would be installed on the west bank (see Fig.2-15).

The channel deepening and widening at UPRR and Old Oakland might impact on bridge pile caps. Further field investigation would be necessary if this alternative is determined to move forward to the feasible stage.

Reach 8a (Old Oakland Road to San Jose Municipal Golf Course)

The creek would continue at a slope of 0.28% through this reach. The improvements would also consist of raising the existing levee by 1–3 ft. on the west bank to meet the freeboard requirements (see Fig. 2-17).

Reach-8b (San Jose Municipal Golf Course to Berryessa Road)

The creek modification would continue to maintain a slope of 0.28% through this reach. A 100-ft. wide floodplain bench would be excavated on the east bank at the previous Flea Market site and a 5–8 ft. high levee would be installed on the west top of the bank to provide sufficient flood conveyance (see Fig. 2-12). Excavation in Coyote Creek at confluence of Upper Penn and Coyote would cause an invert drop for Upper Penn Creek. Coordination with Upper Penitencia Creek Project would be needed.

Reach 9 (Berryessa Road to Mabury Road)

Starting at Berryessa Road, the creek invert profile would be modified to 0.07% instead. A 150-ft. wide floodplain bench would be excavated on the east bank and a 3–6 ft. high levee would be installed partially on the west bank (see Fig. 2-12).

Creek deepening in this reach might impact on the SCVWD's water pipe line and bridge's pile cap. Field investigations on the pipe location and depth would be needed to avoid damage.

Reach 10 (Mabury Road to Hwy 101)

The creek invert slope would still kept at 0.07% and 150–ft. wide flood bench would be excavated on the west bank with a floodwall about 4-ft. tall installed on the west bank (see Fig. 2-18).

The channel deepening and widening at Hwy 101 Bridge might impact on bridge pile caps.

Reach 11a (Hwy 101 to Lower Silver Creek)

The improvements in this reach include a reshaped creek slope at 0.07% and 8-10 ft. high levee on the west and east banks (see Fig. 2-19).

Reach 11b (Lower Silver Creek to Julian Street)

Other than the channel slope modification, creek would be excavated on the east bank to form a 130-feet wide floodplain bench (see Fig. 2-20).

A 3–12 ft. high floodwall would be installed along the perimeter of the Lower Silver Creek confluence because there is inadequate space to construct a levee. Maintenance road would be constructed on the existing or excavated banks.

Reaches 12–13 (Julian Street to William Street)

The creek would continue the reshaped slope through William Street Bridge. In most locations, the existing channel would be deepened by 2–4 feet. Other than channel slope modification, 150 feet wide floodplain benches would also excavated on both east and west banks. As a result of slope steepening and channel widening, the water surface elevation for the design flow would be lowered and no levees would be needed in majority of Reaches 12 and 13, except for a location near the Roosevelt Park and the William Street Bridge. Near the Roosevelt Park, the floodwall would be about 4 feet high and the levee near the William Street Bridge would be about 7-feet high (see Fig. 2-21).

Reach 14 (William Street to Interstate 280)

The creek invert reshape, at 0.07%, would end at about 700 feet upstream of the William street bridge150–ft. wide flood bench would be excavated alternating between east and west bank with 3–13 ft. levee constructed on top of both banks to protect the Selma Olider Park and William Street Park from flooding (see Fig. 2-5) .

B. Project Objectives

A summary of the alternative's effectiveness to meet project objectives follows.

Objective 1: Provide 1% Flood Protection

This alternative would meet the objective of providing flood protection by widening the creek, reshaping channel inverts, and installing flood walls/levees to increase channel capacity for the 100-year design flow. The hydraulic modeling indicates that the improved channel would have sufficient capacity for the 100 year flow and meet freeboard requirements.

Objective 2: Identify Stream *Habitat Enhancement and/or Restoration Opportunities*

This alternative would provide stream habitat enhancement and restoration opportunities by widening the creek, reshaping the creek inverts, and removing the invasive creek side vegetation.

The habitat would be improved owing to improved sediment transport by the creek widening and invert reshaping. The excavated floodplain benches would effectively convey high flows and dissipate energy on the flood benches.

The removal of the dense creek side vegetation for creation of the floodplain benches would improve the light penetration to the heavily shaded corridor. Solar radiation is necessary for photosynthesis by attached algae and is an integral part of stream ecosystem function.

Objective 3: Identify Opportunities to Improve Water Quality

The Alternative D would provide opportunities to improve water quality through reshaping the channel inverts. The current stagnant water would no longer exist. The sediment transport might benefit from the invert reshaping and further improve the instream habitat conditions by changing pool-riffle reaches.

This alternative would also allow for the District to coordinate with the City to improve the control of non-point source pollutants, trash and debris that enter the stream by modification of the cities drainage outfalls. Improved access to the creek through the addition of maintenance roads, would allow the District to better address trash and debris issues within the creek corridor that leads to degraded water quality conditions.

Objective 4: Identify Opportunities to Provide Public Recreation and Access

This alternative would identify opportunities to provide public recreation and access by incorporating new maintenance roads and CSJ's Master Trail Plan in the study.

Objective 5: Minimize the Need for Future Operation and Maintenance Activities and Create a Self-Sustaining System

Current operation and maintenance practices would be expanded to include the new facilities provided by this alternative. Typical maintenance activities will include vegetation management in the lower floodplain benches, vegetation (overgrowth) removal, erosion repair in natural sections, sediment removal, trash and debris removal, and graffiti removal. The new maintenance road/trails will give the District staff accesses to the creek and provide services to the community.

The new facilities described in this alternative would drastically increase the annual operations and maintenance costs compared to the existing conditions because of the additional right of way and maintenance requirements of the constructed improvements. The addition of maintenance roads/trails, levees, floodwalls and flood benches will require routine maintenance such as herbicide application, trimming and vegetation removal, invasive plant species removal and animal control, levee/bank/channel repairs, removing sediment, and graffiti removal. However, it is also expected that the multi-staged channel in this alternative will allow for natural river processes to transport sediment and scour vegetation from the low flow channel, effectively reducing the amount of sediment removal and vegetation management activities required to maintain the channel to design capacity.

For this alternative, it is anticipated with increased public access and maintenance roads that the District's cost for trash and debris removal would also increase considerably due to greater public awareness of trash and debris within the channel. Coordination with the City of San Jose on redesigning the drainage networks to Coyote Creek may alleviate some costs for trash removal in the creeks if the drainage networks are outfitted with debris collection devices. Additionally, opening up the creek corridor through creation of flood benches may decrease the number of homeless encampments that are currently found within the project limits.

Objective 6: Obtain Community Support

The Mid-coyote creek flood protection project is funded for design and partial construction under the Clean, Safe Creek Program to design a project that would provide environmental quality, community benefit and protection from creek flooding in a cost effective manner. This is accomplished through integrated planning and management that considers the physical, hydrologic and ecologic functions and processes of streams within the community setting.

Some local residents have expressed disagreement over this alternative which requires land acquisition from creek side residents. Through continued outreach and open house meetings with all affected community members, the District anticipates finding an alternative which fulfills our commitment to the voters of Santa Clara County.

C. Real Estate Needs

This alternative has taken the possible 100–ft. creek corridor set back, enforced by the City of San Jose, into the consideration to minimize future land acquisition. The District retains limited Fee, Deed, and easement right-of-way within the project area. This alternative would need 190 acres of right-of-way.

Reaches 4 and 5

No land acquisition would be necessary in these two reaches, since all the improvement would be within the existing SCVWD right-of-way.

Reaches 6 and *7*

The floodplain benches and levees/floodwalls would require about 4 acres of real estate from adjacent parcels currently used for industrial purposes.

Reach 8a

The raised levee and widened creek would need about 8.4 acres of land acquired from the City of San Jose and the golf course.

Reach 8b

The floodplain benches and levees would require about 3.5 acres of real estate from adjacent Flea Market and lands used for industrial purposes.

Reach 9

The floodplain benches and levees would require about 2.5 acres of real estate from adjacent Flea market and parcels currently used for industrial purposes.

Reach 10

The floodplain benches and levees would require about 7.3 acres of real estate from adjacent parcels currently used by the City of San Jose as a corporation yard on the east bank and for industrial purposes on the west bank.

Reach 11a

Approximately 8.2 acres of easement would be acquired from the City of San Jose for the creek deepening and widening.

Reach 11b

Approximately 4.7 acres of public land and private land and 6 houses would be acquired from the San Jose Unified School District and property owners adjacent to the creek.

Reach 12

The floodplain benches would require about 11.2 acres of real estate from the San Jose Unified School District and 31 houses from private residences situated on the east and west banks respectively.

Reach 13

Right-of-way acquisition for 2.3 acres of public land from City of San Jose and 84 houses from private residents would be needed for the creek deepening and widening.

Reach 14

The levee and floodplain benches construction would require land rights to be purchased from two private parcels and City of San Jose for 14.3 acres of park area situated along the creek.

D. Cost Estimate

The preliminary capital cost estimate for this alternative is approximately $580 to $600 million. This figure includes costs for construction, bridge replacements, real estate acquisition, and infrastructure utilities relocation (see Table 2-2).

E. Additional Project Considerations

Floodplain bench excavation activity along the project area is likely to intersect hazardous soils based on our preliminary HAZMAT study.

F. Technical Feasibility

This alternative is technically feasible. If a decision is made to pursue this alternative, the feasibility of obtaining adjacent right-of-way and appropriate mitigation will have to be assessed.

2.7 Alternative G (Levees and Floodwalls)

A. Alternative Description

This alternative would increase the creek's conveyance by raising the existing flood levees or constructing new flood walls or levees at existing tops of creek bank. The water surface elevation for the design flow would rise due to the narrowed floodplain. The bridges in the creek would need to be replaced because of the higher water surface. The levee and floodwalls would be higher than those described in the other alternatives. There would not be any improvement within the creek channel; however, the construction of the levee and floodwall would impact the trees and vegetation on the creek banks.

A continuous 20–ft.-wide maintenance road/trail would be located at the top of the levees on both banks to allow access for field services. A reach by reach description of this alternative follows (see Fig. Alt. G).

Reaches 4 and 5 (Montague Expressway to Interstate 880)

Improvements in these reaches are similar to those described in Alternative C.

Reaches 6 and 7 (Interstate 880 to Old Oakland Road)

Improvements in these reaches would include levees/floodwalls. A 2–6 ft. high flood levees would be constructed on the east bank, and a 4–6 ft. high floodwalls would be installed on the west bank (see Fig. 2-22).

Reach 8a *(Old Oakland Road to San Jose Municipal Golf Course)*

The existing levee on west bank would be raised by 1–4 ft. to meet freeboard requirement

Reach 8b (San Jose Municipal Golf Course to Berryessa Road)

8–16 ft. high flood levees would be constructed on top of the west bank and a 3–4 ft. high floodwall on portion of the east bank (see Fig. 2-23).

Reaches 9 through *14 (Berryessa Road to I-280)*

Improvements in these reaches would include levee construction only. The levee height would vary with the topographic conditions (see Fig. 2-10). The following table summarizes the levee height variation. Bridges at Mabury Road, Highway 101, Julian Street, Santa Clara Street, San Antonio Street, and William Street would be replaced to provide conveyance and meet freeboard requirements.

Reach	LH on East	LH on West
9	3-10 ft	7-17 ft
10	5-11 ft	5-15 ft
11a	9-14 ft	8-20 ft
11b	7-22 ft	6-12 ft
12	5-25 ft	7-14 ft
13	6-25 ft	6-23 ft
14	7-29 ft	7-29 ft

B. Project Objectives

A summary of the alternative's effectiveness to meet project objectives follows.

Objective 1: Provide 1% Flood Protection

This alternative would meet the objective of providing flood protection by installing flood walls/levees to increase channel capacity for the 100-year design flow. The hydraulic modeling indicates that the improved channel would have sufficient capacity for the 100-year flow and meet freeboard requirements.

Objective 2: *Identify Stream Habitat Enhancement and/or Restoration Opportunities*

The existing environmental setting would not be changed, thus our objectives for improving fishery and wildlife habitat would not be met.

Objective 3: *Identify Opportunities to Improve Water Quality*

The existing condition in the creek would not be improved in this alternative; however, this alternative would allow for the District to coordinate with the City to improve the control of non-point source pollutants, trash and debris that enter the stream by modification of the cities drainage outfalls. Improved access to the creek through the addition of maintenance roads, would allow the District to better address trash and debris issues within the creek corridor that leads to degraded water quality conditions.

Objective 4: Identify Opportunities to Provide Public Recreation and Access

This alternative would identify opportunities to provide public recreation and access by incorporating new maintenance roads and CSJ's Master Trail Plan in the study. Access road could be provided with land acquisition

Objective 5: Minimize the Need for Future Operation and Maintenance Activities and Create a Self-Sustaining System

Current operation and maintenance practices would be expanded to include the new facilities provided by this alternative. Typical maintenance activities would include vegetation (overgrowth) removal, erosion repair in natural sections, sediment removal, trash and debris removal, and removal of graffiti on the new floodwalls. The new maintenance road/trails would give the District staff accesses to the creek and provide services to the community.

The new facilities described in this alternative would drastically increase the annual operations and maintenance costs compared to the existing conditions because of the additional right of way and maintenance requirements of the constructed improvements. The addition of maintenance roads/trails, levees, and floodwalls would require routine maintenance such as herbicide application, trimming and vegetation removal, invasive plant species removal and animal control, levee/bank/channel repairs, removing sediment, and graffiti removal.

For this alternative, it is anticipated with increased public access and maintenance roads that the District's cost for trash and debris removal would also increase considerably due to greater public awareness of trash and debris within the channel. Coordination with the City of San Jose on redesigning the drainage networks to Coyote Creek may alleviate some costs for trash removal in the creeks if the drainage networks are outfitted with debris collection devices.

Additionally, the high floodwall and levees would make it more difficult for police to patrol the creek area resulting in concerns with safety and the presence of homeless encampments.

Objective 6: Obtain Community Support

Some local residents have expressed objections over this alternative which would require land acquisition from creek side residents and build high walls that block the view of the creek.

C. Real Estate Needs

The land acquisition would be needed for access roads. This alternative would need 184 acres of right-of-way.

D. Cost Estimate

Capital cost for the alternative would be approximately \$440–\$470 million (see Table 2-2).

E. Operation and Maintenance Requirements

Current operation and maintenance practices would continue. Typical maintenance activities include trash and debris removal, graffiti removal, vegetation (overgrowth) removal, and erosion repair.

F. Technical Feasibility

This alternative is technically feasible. If a decision is made to pursue this alternative, the feasibility of obtaining adjacent right-of-way and appropriate mitigation will have to be assessed.

2.8 Alternative H (By-Pass Box Beneath William Street and 21st Street)

A. Alternative Description

This alternative was investigated to respond to residents' comment.

In this alternative, except for the levee/floodwall construction and floodplain bench excavation, the improvements also include an underground bypass beneath William Street and 21st Street.

Differing from the benches and levees which will contain the same amount of flow in the creek, the bypass structure will route the portion of flooding water to downstream, so that the flow in the existing channel is reduced to avoid overtopping.

A twin 20 ft. X 20 ft. box culvert, constructed beneath William and 21st Street, would be used to divert partial design flow, up to 10,000 cfs. The culvert inlet and outlet structures would be located near the Coyote Outdoor Classroom and the San Jose Academy High School, respectively. Because of the presence of the Lower Silver creek, the bypass would be constrained to end at upstream of the tributary confluence.

The hydraulic modeling shows that the culvert is not long enough to lower water surface elevation drastically in these two reaches. Therefore, channel improvements with benches and levees would be still necessary and land rights would still need to be purchased from residents adjacent to the creek.

To allow for inspection and maintenance of the new features of this alternative, 20-ft. wide maintenance roads would be located along the top of newly excavated banks where floodplain benches have been constructed, or along the inboard side of all floodwalls, or on top of levees when possible.

Existing creek-side vegetation would be removed during the creek invert modification, and newly formed benches would be replanted with native vegetation.

A reach by reach description of this alternative follows (see Fig. Alt. H).

> *Reaches 4 through 11a (Montague Expressway to Lower Silver Creek)*
>
> Improvements in these reaches are similar to those described in Alternative C.
>
> *Reach 11b (Lower Silver Creek to Julian street)*
>
> A 5–10 ft. high levee would be constructed on the west top of bank and 4-20 ft. high levee on the east top of bank (see Fig. 2-10).
>
> Julian Street Bridge would be replaced to provide hydraulic conveyance and meet freeboard requirements.
>
> *Reach 12 (Julian Street to Santa Clara Street)*
>
> Improvements for this reach would include construction of a levee and bridge replacement. A 5-12 ft. high levee would be constructed on the west top of bank and 3–22 ft. high levee will be installed on the east top of bank. Also, the outlet structure of the box culverts would be located at west bank of the creek (see Fig. 2-24).
>
> Santa Clara Street Bridge would be replaced to provide sufficient hydraulic conveyance and meet freeboard requirements.

Reach 13 (Santa Clara Street to William Street)

Improvements for this reach would be similar to those in Reach 12. Levees would be constructed on both banks. A 3–20 ft. high levee would be constructed on the west bank and 4-6 ft. high levee on the east top of bank. The inlet structure of the box culverts would be located near the District's outdoor classroom (see Fig 2-24).

William Street Bridges would be replaced to provide hydraulic conveyance and meet freeboard requirements.

Reach 14 (William Street to Interstate 280)

Improvements in this reach would include only construction of a 3–24 ft. levee on east and west top of banks (see Fig. 2-10).

B. Project Objectives

This alternative would protect homes, schools, businesses, and public facilities along the project area from 100-year flood. The existing environmental setting would not be changed, thus our objectives for improving fishery and wildlife habitat and improving water quality would not be met. Access road could be provided with land acquisition.

C. Real Estate Needs

It is expected the bypass structure will be installed mostly within public property (17th Street), and the construction would require easements from the City of San Jose and a land right acquisition from the property owners who live close to where the bypass will connect to the creek.

Reaches 4 through 11a

Real estate needs would be the same as that described in Alternative C.

Reach 11b

Approximately 2.2 acres of public land and private land and 22 houses would be acquired from the San Jose Unified School District and property owners adjacent to the creek.

Reach 12

The levee construction would require land rights to be purchased from 26 private parcels and City of San Jose for 4.1 acres situated along the creek.

Reach 13

This reach is located in a very dense and high value residential area. Right-of-way acquisition for 2.6 acres of public land from City of San Jose and 76 houses from private residents would be needed for the construction of the levees.

Reach 14

The floodplain benches excavation and levee construction would require land rights to be purchased from 5 private parcels and City of San Jose for 9.7 acres situated along the creek.

D. Cost Estimate

The preliminary capital cost estimate for this alternative is $570–$590 million. This figure includes costs for construction of levee/floodwall and bypass culvert, bridge replacements, real estate acquisition, and infrastructure utilities relocation (see Table 2-2).

Existing O&M activities are expected to continue on the channel. O&M of the bypass box culvert would be minimal. The inlets would require regular cleaning to remove leaves and other debris during the flow season.

E. Additional Project Considerations

Floodplain bench excavation activity along the project area is likely to intersect hazardous soils based on our preliminary HAZMAT study.

The bypass culvert would pass through the high school property. The negotiation for the easements could be difficult.

Traffic and existing utilities in the roadway would be interrupted during construction of the culvert.

F. Technical Feasibility

This alternative is technically feasible. If a decision is made to pursue this alternative, the feasibility of obtaining adjacent right-of-way and appropriate mitigation will have to be assessed.

2.9 Alternative I (By-Pass Beneath 17th Street and Mission Road)

A. Alternative Description

This alternative is similar to the Alternative H, except for a longer box culvert from near the William Street to Berryessa Road on the west side of the creek. .

The design flow would be diverted through a twin 20 ft. X 20 ft. underground box culverts, constructed along South 17th Street and turning at Mission Road with inlet and outlet structures being located near the Coyote Outdoor Classroom and at the Mission Road, respectively.

The existing creek from Reaches 11a through 13 would be preserved with the exception of a flood wall on the west bank in Reach 13 near William Street.

Charcot Avenue bridge would be replaced.

To allow for inspection and maintenance of the new features of this alternative, twenty foot wide maintenance roads would be located along the top of newly excavated banks where floodplain benches have been constructed, or along the inboard side of all floodwalls and on top of levees when possible.

Existing creek-side vegetation would be removed during the creek improvements, and newly formed benches would be replanted with native vegetation.

A reach by reach description of this alternative follows (see Fig. Alt. I).

Reaches 4–9 (Montague Expressway to Mabury Road)

Improvements in these reaches are similar to those described in Alternative C.

Reach 10 (Mabury Road Hwy 101)

About 100-ft flood bench would be excavated on the west bank with a 3-6 ft. tall levee on top of the west bank (see Fig. 2-25).

Reaches 11a–13 (Hwy 101 to William Street)

There would not be any channel improvements in the existing creek except for a 13–15 ft. floodwall on the west bank in Reach 13 near the William Street (see Fig. 2-26).

Reach 14 (William Street to Interstate 280)

About 150-ft. wide flood bench would be excavated alternating between east and west bank mainly in two parks from William Street to Interstate 280 (see Fig. 2-27).

B. Project Objectives

A summary of the alternative's effectiveness to meet project objectives follows.

Objective 1: Provide 1% Flood Protection

This alternative would meet the objective of providing flood protection by widening the creek and installing flood walls/levees to increase channel capacity at downstream and diverting flow through the bypass to reduce the 100-year flow in the creek. The hydraulic modeling indicates that the improved channel would have sufficient capacity for the 100-year flow and meet freeboard requirements.

Objective 2: Identify Stream Habitat Enhancement and/or Restoration Opportunities

At downstream reaches from 4 to 10, this alternative would provide opportunities to improve ecological stream functions by widening the channel and removing the invasive plants along the creek.

At upstream, since the creek would remain unchanged, the objective would not be met.

Objective 3: Identify Opportunities to Improve Water Quality

This alternative may provide opportunities to improve water quality by increasing the sediment transport capacity through changes in the current channel geometry. The enlarged channel would slow down the sediment transport and cause deposition of sediments, that has a potential to change pool-riffle reaches and may improve water quality.

However, the upstream reaches from 11a to 14 would still have water quality issues.

This alternative also allows for the District to coordinate with the City to improve the control of non-point source pollutants, trash and debris that enter the stream by modification of the cities drainage outfalls. Improved access to the creek through the addition of maintenance roads, would allow the District to better address trash and debris issues within the creek corridor that leads to degraded water quality conditions.

Objective 4: Identify Opportunities to Provide Public Recreation and Access

This alternative would identify opportunities to provide public recreation and access by incorporating new maintenance roads and CSJ's Master Trail Plan in the study.

Objective 5: Minimize the Need for Future Operation and Maintenance Activities and Create a Self-sustaining System

Current operation and maintenance practices would be expanded to include the new facilities provided by this alternative. Typical maintenance activities will include vegetation management in the lower floodplain benches, vegetation (overgrowth) removal, erosion repair in natural sections, sediment removal, trash and debris removal, and graffiti removal. The new maintenance road/trails will give the District staff accesses to the creek and provide services to the community.

The new facilities described in this alternative would drastically increase the annual operations and maintenance costs compared to the existing conditions because of the additional right of way and maintenance requirements of the constructed improvements. The addition of maintenance roads/trails, levees, floodwalls and flood benches will require routine maintenance such as herbicide application, trimming and vegetation removal, invasive plant species removal and animal control, levee/bank/channel repairs, removing sediment, and graffiti removal. However, it is also expected that the multi-staged channel in this alternative will allow for natural river processes to transport sediment and scour vegetation from the low flow channel, effectively reducing the amount of sediment removal and vegetation management activities required to maintain the channel to design capacity.

For this alternative, it is anticipated with increased public access and maintenance roads that the District's cost for trash and debris removal would also increase considerably due to greater public awareness of trash and debris within the channel. Coordination with the City of San Jose on redesigning the drainage networks to Coyote Creek may alleviate some costs for trash removal in the creeks if the drainage networks are outfitted with debris collection devices. Additionally, opening up the creek corridor through creation of flood benches may decrease the number of homeless encampments that are currently found within the project limits.

Objective 6: Obtain Community Support

The Mid-Coyote Creek flood protection project is funded for planning, design and partial construction under the Clean, Safe Creek Program. The project is to provide environmental quality, community benefit and protection from creek flooding in a cost effective manner. This is accomplished through integrated planning and management that considers the physical, hydrologic and ecologic functions and processes of streams within the community setting.

Some local residents have expressed disagreement over this alternative which requires land acquisition from creek side residents. Through continued outreach and open house meetings with all affected community members, the District anticipates finding an alternative which fulfills our commitment to the voters of Santa Clara County.

C. Real Estate Needs

It is expected the bypass structure would be installed mostly within public property (17th Street), and the construction would require easements from the City of San Jose and a land right acquisition from the property owners who live close to where the bypass would connect to the creek. The following summarizes the real estate needs for the improvements.

Reach 4-9

Real estate needs would be the same as that described in Alternative C.

Reach 10

The floodplain benches and levees would require about 4.2 acres of real estate from adjacent parcels currently used by the City of San Jose as a corporation yard on the east bank and for industrial purposes on the west bank.

Reach 11-13

There would be no need to acquire any lands from the property owners adjacent to the creek.

Reach 14

The floodplain benches excavation would require land rights to be purchased from 5 private parcels and City of San Jose for 6.8 acres situated along the creek.

D. Cost Estimate

The preliminary capital cost estimate for this alternative is $380–$390 million. This figure includes costs for construction of levee/floodwall and bypass culvert, bridge replacements, real estate acquisition, and infrastructure utilities relocation (see Table 2-2).

Existing O&M activities are expected to continue on the channel. O&M of the by-pass box culvert would be minimal. The inlets would require regular cleaning to remove leaves and other debris during the flow season.

E. Additional Project Considerations

Floodplain bench excavation activity along the project area is likely to intersect hazardous soils based on our preliminary HAZMAT study.

Traffic and existing utilities in the roadway would be temporarily interrupted during construction of the culvert.

F. Technical Feasibility

This alternative is technically feasible. If a decision is made to pursue this alternative, the feasibility of obtaining adjacent right-of-way and appropriate mitigation will have to be assessed.

2.10 Alternative J (Reservoir Operation Modification—Releasing Water From 90% TO 64%)

A. Alternative Description

As discussed previously, upstream reaches of the Mid-Coyote project are located at a highly dense residential area. Due to the urbanization encroachment, any creek improvement to increase creek's hydraulic capacity would require land acquisition from property owners along the creek. In this alternative, study has been extended to upstream of the project area to seek a way that can reduce the 100-year flood to a flow that existing creek could convey without any modification in the creek.

The District owns and operates two reservoirs, Coyote (1936) and Anderson (1950), in the upper Coyote Watershed. Both are retained by earth dams that include concrete overflow spillways and a small controlled outlet pipeline, 49" for Anderson and 48" for Coyote. Anderson Reservoir is located near the valley floor and approximately 2 miles downstream from Coyote Reservoir. The two reservoirs intercept runoff from about 190 square miles of watershed and store water primarily for water supply to the residents in Santa Clara County.

The reservoirs are operated based on a "rule curve" established in 1982 (see Chart 2-1). If the water level is higher than the curve elevation, water in the reservoirs will be released via the existing outlet pipeline with a maximum discharge of approximately 550 cfs. In the summer, release from the reservoirs is also required for fisheries habitat in Coyote Creek located downstream from the Anderson Reservoir.

The secondary function of the reservoirs is for flood control. The hydrologic study shows that there would be double peaks in the Coyote Creek (see Chart 2-2). The first peak passing through is created by the watershed downstream of the reservoir, and the second peak is by the release from the reservoir. The second peak is the largest in reach upstream of Lower Silver Creek confluence; however, the two peaks are about the same at downstream reach of the creek confluence. Therefore, efforts should be made to reduce the release from the Anderson Reservoir in order to reduce the peak flow at the reaches upstream of the Lower Silver confluence.

In this alternative, the operation of the Anderson Reservoir would be modified in such way that water in the reservoir would be released from initial 90% full to 64% full within three days, prior to any major storms. This new operation would require a 13-feet diameter outlet pipe releasing at about 4,000 cfs for three days. The storage from releasing, about 26% of the Anderson Reservoir's capacity, would help attenuate the incoming peak flow and reduce the peak flow to 7,000 cfs at I-280 which is existing creek's capacity.

Since the flow reduction resulting from the reservoir operation modification would only reduce the second peak flow, the first peak flow due to watershed at downstream of the reservoir would still cause flooding for the area downstream of Lower Silver Creek confluence. Therefore, channel modification for downstream reaches is still needed. In this alternative, channel improvements within Reaches 4 to 10 would be the same as Alternative I.

B. Project Objectives

A summary of the alternative's effectiveness to meet project objectives follows.

Objective 1: Provide 1% Flood Protection

This alternative would meet the objective of providing flood protection in project reaches by widening the creek and installing flood walls/levees to increase channel capacity at downstream and modifying Anderson Reservoir operation to reduce the 100-year flow in the creek. The hydraulic modeling indicates that the improved channel would have sufficient capacity for the reduced flow and meet free board requirements.

Objective 2: Identify Stream Habitat Enhancement and/or Restoration Opportunities

At downstream reaches from 4 to 10, this alternative would provide opportunities to improve ecological stream functions by widening the channel and removing the invasive plants along the creek.

At upstream, since the creek would remain unchanged, the objective would not be met.

Objective 3: Identify Opportunities to Improve Water Quality

This alternative may provide opportunities to improve water quality by increasing the sediment transport capacity through changes in the current channel geometry. The enlarged channel would slow down the sediment transport and cause deposition of sediments, that has a potential to change pool-riffle reaches and may improve water quality.

However, the upstream reaches from 11a to 14 would still have water quality issues.

Objective 4: Identify Opportunities to Provide Public Recreation and Access

This alternative would identify opportunities to provide public recreation and access by incorporating new maintenance roads and CSJ's Master Trail Plan in the study.

Objective 5: Minimize the Need for Future Operation and Maintenance Activities and Create a Self-Sustaining System

Current operation and maintenance practices would be expanded to include the new facilities provided by this alternative. Typical maintenance activities will include vegetation management in the lower floodplain benches, vegetation (overgrowth) removal, erosion repair in natural sections, sediment removal, trash and debris removal, and graffiti removal. The new maintenance road/trails will give the District staff accesses to the creek and provide services to the community.

The new facilities described in this alternative would drastically increase the annual operations and maintenance costs compared to the existing conditions because of the additional right of way and maintenance requirements of the constructed improvements. The addition of maintenance roads/trails, levees, floodwalls and flood benches will require routine maintenance such as herbicide application, trimming and vegetation removal, invasive plant species removal and animal control, levee/bank/channel repairs, removing sediment, and graffiti removal. However, it is also expected that the multi-staged channel in this alternative will allow for natural river processes to transport sediment and scour vegetation from the low flow channel, effectively reducing the amount of sediment removal and vegetation management activities required to maintain the channel to design capacity.

For this alternative, it is anticipated with increased public access and maintenance roads that the District's cost for trash and debris removal would also increase considerably due to greater public awareness of trash and debris within the channel. Coordination with the City of San Jose on redesigning the drainage networks to Coyote Creek may alleviate some costs for trash removal in the creeks if the drainage networks are outfitted with debris collection devices. Additionally, opening up the creek corridor through creation of flood benches may decrease the number of homeless encampments that are currently found within the project limits.

Objective 6: Obtain Community Support

The Mid-coyote creek flood protection project is funded for planning, design and partial construction under the Clean, Safe Creek Program. The project is to provide environmental quality, community benefit and protection from creek flooding in a cost effective manner. This is accomplished through integrated planning and management that considers the physical, hydrologic and ecologic functions and processes of streams within the community setting.

In the open house held in June 2009, residents living in the project area showed strong interest in this alternative. Residents at the reservoir site may think otherwise.

C. Real Estate Needs

It is expected the easements from the City of San Jose and a land right acquisition from the property owners would be needed. The following summarizes the real estate needs for the improvements.

Real estate needs for Reaches 4–14 would be the same as those in Alternative I.

The rapid drawdown, due to the significant water releasing, may trigger a landslide at reservoir banks and dam upstream face. The 81 houses located at water front, may need to be acquired for the safety concerns.

D. Additional Project Considerations

The ultimate location and alignment of the new outlet pipe is not determined at this time. Construction of the new outlet pipe would have an impact to the structural integrity of the Anderson Dam.

Seismic stability of both dams has been a concern. Dam Safety Program Unit is conducting a study on these issues. The study results will be incorporated in this planning study.

In addition, when the reservoir is releasing water at a rate of 4,000 cfs, the rapid drawdown of water surface could trigger landslide on the bank and the dam. At this point, there is no any reliable landslide information available for the reservoir banks and the dam. The further geotechnical investigation would be necessary to define the impact of the rapid drawdown.

E. Cost Estimate

Capital costs would be $400–$490 million.

F. Technical Feasibility

This alternative is technically feasible. If a decision is made to pursue this alternative, the feasibility of obtaining adjacent right-of-way and appropriate mitigation will have to be assessed.

2.11 Alternative K (Reservoir Operation Modification—Water at 64% Full)

A. Alternative Description

This alternative is similar to that described in Alternative J. The only difference is that the current reservoir operation rule curve would be modified so that the reservoir would be operating at 64% of its capacity during the entire winter. An 8-foot diameter outlet pipe would be installed to release water in case that water level is higher than 64% full. As discussed in the alternative J, the additional storage, about 26% of the Anderson Reservoir's capacity, would help attenuate the peak flow and reduce the peak to 7,000 cfs at I-280 which is existing creek's capacity.

Since the flow reduction resulting from the reservoir operation modification would only reduce the second peak flow, the first peak flow due to watershed at downstream of the reservoir would still cause flooding for the area downstream of Lower Silver Creek confluence. Therefore, channel modification for downstream reaches is still needed. In this alternative, channel improvements within Reaches 4 to 10 would be the same as Alternative I.

B. Project Objectives

A summary of the alternative's effectiveness to meet project objectives follows.

Objective 1: Provide 1% Flood Protection

This alternative would meet the objective of providing flood protection in project reaches by widening the creek and installing flood walls/levees to increase channel capacity at downstream and modifying Anderson Reservoir operation to reduce the 100-year flow in the creek. The hydraulic modeling indicates that the improved channel would have sufficient capacity for the reduced flow and meet free board requirements.

Objective 2: *Identify* Stream *Habitat Enhancement and/or Restoration Opportunities*

At downstream reaches from 4 to 10, this alternative would provide opportunities to improve ecological stream functions by widening the channel and removing the invasive plants along the creek.

At upstream, since the creek would remain unchanged, the objective would not be met.

Objective 3: *Identify Opportunities to Improve Water Quality*

This alternative may provide opportunities to improve water quality by increasing the sediment transport capacity through changes in the current channel geometry. The enlarged channel would slow down the sediment transport and cause deposition of sediments, that has a potential to change pool-riffle reaches and may improve water quality.

However, the upstream reaches from 11a to 14 would still have water quality issues.

Objective 4: *Identify Opportunities to Provide Public Recreation and Access*

This alternative would identify opportunities to provide public recreation and access by incorporating new maintenance roads and CSJ's Master Trail Plan in the study.

Objective 5: *Minimize the* Need *for Future Operation and Maintenance Activities and Create a Self-Sustaining System*

Current operation and maintenance practices would be expanded to include the new facilities provided by this alternative. Typical maintenance activities will include vegetation management in the lower floodplain benches, vegetation (overgrowth) removal, erosion repair in natural sections, sediment removal, trash and debris removal, and graffiti removal. The new maintenance road/trails will give the District staff accesses to the creek and provide services to the community.

The new facilities described in this alternative would drastically increase the annual operations and maintenance costs compared to the existing conditions because of the additional right of way and maintenance requirements of the constructed improvements. The addition of maintenance roads/trails, levees, floodwalls and flood benches will require routine maintenance such as herbicide application, trimming and vegetation removal, invasive plant species removal and animal control, levee/bank/channel repairs, removing sediment, and graffiti removal. However, it is also expected that the multi-staged channel in this alternative will allow for natural river processes to transport sediment and scour vegetation from the low flow channel, effectively reducing the amount of sediment removal and vegetation management activities required to maintain the channel to design capacity.

For this alternative, it is anticipated with increased public access and maintenance roads that the District's cost for trash and debris removal would also increase considerably due to greater public awareness of trash and debris within the channel. Coordination with the City of San Jose on redesigning the drainage networks to Coyote Creek may alleviate some costs for trash removal in the creeks if the drainage networks are outfitted with debris collection devices. Additionally, opening up the creek corridor through creation of flood benches may decrease the number of homeless encampments that are currently found within the project limits.

Objective 6: Obtain Community Support

The Mid-Coyote Creek flood protection project is funded for planning, design and partial construction under the Clean, Safe Creek Program. The project is to provide environmental quality, community benefit and protection from creek flooding in a cost effective manner. This is accomplished through integrated planning and management that considers the physical, hydrologic and ecologic functions and processes of streams within the community setting.

In the open house held in June 2009, residents living in the project area showed strong interest in this alternative. Residents at the reservoir site may think otherwise.

C. Real Estate Needs

Right-of-way or easement would be purchased from property owners along the project reach to provide access for maintenance activities.

Real estate needs for Reaches 4–14 would be the same as those in Alternative I.

D. Additional Project Considerations

The ultimate location and alignment of the new outlet pipe is not determined at this time. Construction of the new outlet pipe would have an impact to the structural integrity of the Anderson Dam.

Seismic stability of both dams has been a concern. Dam Safety Program Unit is conducting a study on these issues. The study results will be incorporated in this planning study.

This alternative would be complicated by increasingly stringent regulatory constraints upheld by federal and state agencies that regulate the District's ability to import water. Unfavorable climatic conditions and water scarcity could also negatively affect the availability of imported water and increase costs to purchase. This alternative would threaten the water supply functionality of Anderson Reservoir and increases the risk of not filling the reservoir by the end of the rainy season. This would decrease the District's ability to provide water during the dry season in years of low precipitation.

E. Cost Estimate

Capital costs would be \$230–\$280 million, in which the cost of water loss due to water releasing is not included.

F. Technical Feasibility

This alternative is technically feasible. If a decision is made to pursue this alternative, the feasibility of obtaining adjacent right-of-way and appropriate mitigation will have to be assessed.

2.12 Alternative L (Offstream Detention Ponds)

A. Alternative Description

For this alternative, the Anderson Reservoir was assumed at 90% full prior to the 100-year storm. The 100-year flow rate at the reservoir spillway would be about 15,000 cfs. With the inflow from Fisher Creek and the local drainage, the 100-year flow at I-280 would be 17,000 cfs.

As the existing channel capacity of Coyote Creek between I-280 and upstream of Lower silver Creek confluence is about 7,000 cfs, the 100-year peak flow from the upstream reach would need to be further reduced to minimize channel improvement on the existing channel. To attenuate the peak flow to 7,000 cfs at I-280, a series of off-stream detention ponds, with approximately 18,486 acre-ft. volumes, adjacent to the Coyote Creek would be constructed between downstream of Anderson Reservoir and Fisher Creek confluence. The detention ponds would capture and detain peak flows from Anderson Reservoir, and release flows back to the creek after the peak flow passes. The available open spaces adjacent to the Coyote Creek between Anderson dam and Fisher Creek can only provide approximately 14,314 acre-ft. of detention storage, while the required volume was calculated as 18,500 acre-ft. in our hydrology study. The parcels that would be acquired are shown on the Fig. Alt. L.

The available detention ponds would have a surface area of approximately 1,563 acre with depth varying from 5 to 25 feet at 4:1 side slope. A side-weir structure would be installed in each detention site to divert the creek flow into the ponds. Outfall pipes would also be constructed to allow stored water to flow back into the creek after the peak flood has passed. In addition, a flap gate or other back flow prevention device would be installed in the outfall structure to prevent flow from entering the ponds from the downstream.

The validity of this alternative depends on the land availability and depth of the ground water table in the potential detention pond area.

Even though the upstream detention ponds would reduce the flood to downstream, the reduction is not sufficient to eliminate the need for channel improvement downstream of Hwy 101. For reaches from Montague Expressway to Lower Silver Creek confluence, the channel improvements are similar to Alternative I.

B. Project Objectives

Objective 1: Provide 1% Flood Protection

This alternative would meet the objective of providing flood protection in project reaches by widening the creek and installing flood walls/levees to increase channel capacity at downstream and constructing a series of detention ponds to reduce the 100-year flow in the creek. The hydraulic modeling indicates that the improved channel would have sufficient capacity for the reduced flow and meet free board requirements.

Objective 2: Identify Stream Habitat Enhancement and/or Restoration Opportunities

At downstream reaches from 4 to 10, this alternative would provide opportunities to improve ecological stream functions by widening the channel and removing the invasive plants along the creek.

At upstream, since the creek would remain unchanged, the objective would not be met.

Objective *3: Identify Opportunities to Improve Water Quality*

This alternative may provide opportunities to improve water quality by increasing the sediment transport capacity through changes in the current channel geometry. The enlarged channel would slow down the sediment transport and cause deposition of sediments, that has a potential to change pool-riffle reaches and may improve water quality.

However, the upstream reaches from 11a to 14 would still have water quality issues.

Objective 4: Identify Opportunities to Provide Public Recreation and Access

This alternative would identify opportunities to provide public recreation and access by incorporating new maintenance roads and CSJ's Master Trail Plan in the study.

Objective 5: Minimize the Need for Future Operation and Maintenance Activities and Create a Self-Sustaining System

Current operation and maintenance practices would be expanded to include the new facilities provided by this alternative. Typical maintenance activities will include vegetation management in the lower floodplain benches, vegetation (overgrowth) removal, erosion repair in natural sections, sediment removal, trash and debris removal, and graffiti removal. The new maintenance road/trails will give the District staff accesses to the creek and provide services to the community.

The new facilities described in this alternative would drastically increase the annual operations and maintenance costs compared to the existing conditions because of the additional right of way and maintenance requirements of the constructed improvements. The addition of maintenance roads/trails, levees, floodwalls and flood benches will require routine maintenance such as herbicide application, trimming and vegetation removal, invasive plant species removal and animal control, levee/bank/channel repairs, removing sediment, and graffiti removal. However, it is also expected that the multi-staged channel in this alternative will allow for natural river processes to transport sediment and scour vegetation from the low flow channel, effectively reducing the amount of sediment removal and vegetation management activities required to maintain the channel to design capacity.

For this alternative, it is anticipated with increased public access and maintenance roads that the Districts cost for trash and debris removal would also increase considerably due to greater public awareness of trash and debris within the channel. Coordination with the City of San Jose on redesigning the drainage networks to Coyote Creek may alleviate some costs for trash removal in the creeks if the drainage networks are outfitted with debris collection devices. Additionally, opening up the creek corridor through creation of flood benches may decrease the number of homeless encampments that are currently found within the project limits.

Objective 6: Obtain Community Support

The Mid-Coyote Creek flood protection project is funded for planning, design and partial construction under the Clean, Safe Creek Program. The project is to provide environmental quality, community benefit and protection from creek flooding in a cost effective manner. This is accomplished through integrated planning and management that considers the physical, hydrologic and ecologic functions and processes of streams within the community setting.

C. Real Estate Needs

Right-of-way and easement acquisition from the properties near the creek between Reaches 4 and 14 would be similar to the Alternative I.

The available open spaces approximately 1,563 acres, between Anderson dam and Fisher Creek are not enough to meet the detention storage requirement.

D. Additional Project Considerations

The groundwater table for the vacant lands downstream of the reservoir is relatively high and therefore it limits the depth of the detention ponds. The scarcity of available vacant lands downstream of the reservoir also posed a constraint.

E. Cost Estimate

Capital cost for the alternative would be more than $960–$1,270 million, because these numbers don't include the cost for the unavailable lands.

F. Technical Feasibility

This alternative is technically feasible. If a decision is made to pursue this alternative, the feasibility of obtaining adjacent right-of-way and appropriate mitigation will have to be assessed.

2.13 Alternative M (Offstream Detention Ponds, Reservoir From 90% TO 80%)

A. Alternative Description

The operation of Anderson Reservoir would be modified such that the water level in the reservoir would be lowered from 90% to 80% of the capacity 3 days prior to a forecasted 100-year storm. This would require replacement of the existing undersized outlet. In order to lower the reservoir capacity level from 90% full to 80% full in 3 days period a new 9-feet diameter outlet pipe would need to be constructed. It is anticipated that the outlet would be releasing at about 1500 cfs during the 3-day period. With this modified operation procedure, the anticipated 100-year peak flow at downstream of the reservoir would be reduced from 15,000 cfs to approximately 11,700 cfs.

As the existing channel capacity of Coyote Creek between I-280 and upstream of Lower Silver Creek confluence is about 7,000 cfs, the 100-year peak flow from the upstream reach would need to be further reduced to minimize channel improvement on the existing channel. To attenuate the peak flow at Anderson spillway from 11,700 cfs to 7,000 cfs, detention ponds adjacent to the Coyote Creek would be constructed. The detention ponds would capture and detain peak flows from Anderson Reservoir, and release flows back to the creek after the peak flow passes. The required detention ponds would have a surface area of approximately 849 acres with depth varying from 5 to 25 feet at 4:1 side slope. The basins would provide approximately 8,364 acre-ft. of temporary flood storage. An overflow weir structure would be installed to divert flow from the adjacent creek channel into the ponds. Outfall pipes would also be constructed to allow stored water to flow back into the creek after the peak flood has passed. In addition, a flap gate or other back flow prevention device would be installed in the outfall structure to prevent flow from entering the ponds from the downstream.

The validity of this alternative depends on the land availability and depth of the ground water table in the potential detention pond area.

Even though the upstream detention ponds would reduce the flood to downstream, the reduction is not sufficient to eliminate the need for channel improvement downstream of Hwy 101. For reaches from Montague Expressway to Lower Silver Creek confluence, the channel improvements are similar to Alternative I.

B. Project Objectives

Objective 1: Provide 1% Flood Protection

This alternative would meet the objective of providing flood protection in project reaches by widening the creek and installing flood walls/levees to increase channel capacity at downstream and constructing a series of detention ponds to reduce the 100-year flow in the creek. The hydraulic modeling indicates that the improved channel would have sufficient capacity for the reduced flow and meet freeboard requirements.

Objective 2: Identify Stream Habitat Enhancement and/or Restoration Opportunities

At downstream reaches from 4 to 10, this alternative would provide opportunities to improve ecological stream functions by widening the channel and removing the invasive plants along the creek.

At upstream, since the creek would remain unchanged, the objective would not be met.

Objective 3: Identify Opportunities to Improve Water Quality

This alternative may provide opportunities to improve water quality by increasing the sediment transport capacity through changes in the current channel geometry. The enlarged channel would slow down the sediment transport and cause deposition of sediments, that has a potential to change pool-riffle reaches and may improve water quality.

However, the upstream reaches from 11a to 14 would still have water quality issues.

Objective 4: Identify Opportunities to Provide Public Recreation and Access

This alternative would identify opportunities to provide public recreation and access by incorporating new maintenance roads and CSJ's Master Trail Plan in the study.

Objective 5: Minimize the Need for Future Operation and Maintenance Activities and Create a Self-Sustaining System

Current operation and maintenance practices would be expanded to include the new facilities provided by this alternative. Typical maintenance activities will include vegetation management in the lower floodplain benches, vegetation (overgrowth) removal, erosion repair in natural sections, sediment removal, trash and debris removal, and graffiti removal. The new maintenance road/trails will give the District staff accesses to the creek and provide services to the community.

The new facilities described in this alternative would drastically increase the annual operations and maintenance costs compared to the existing conditions because of the additional right of way and maintenance requirements of the constructed improvements. The addition of maintenance roads/trails, levees, floodwalls and flood benches will require routine maintenance such as herbicide application, trimming and vegetation removal, invasive plant species removal and animal control, levee/bank/channel repairs, removing sediment, and graffiti removal. However, it is also expected that the multi-staged channel in this alternative will allow for natural river processes to transport sediment and scour vegetation from the low flow channel, effectively reducing the amount of sediment removal and vegetation management activities required to maintain the channel to design capacity.

For this alternative, it is anticipated with increased public access and maintenance roads that the District's cost for trash and debris removal would also increase considerably due to greater public awareness of trash and debris within the channel. Coordination with the City of San Jose on redesigning the drainage networks to Coyote Creek may alleviate some costs for trash removal in the creeks if the drainage networks are outfitted with debris collection devices. Additionally, opening up the creek corridor through creation of flood benches may decrease the number of homeless encampments that are currently found within the project limits.

Objective 6: Obtain Community Support

The Mid-Coyote Creek flood protection project is funded for planning, design and partial construction under the Clean, Safe Creek Program. The project is to provide environmental quality, community benefit and protection from creek flooding in a cost effective manner. This is accomplished through integrated planning and management that considers the physical, hydrologic and ecologic functions and processes of streams within the community setting.

In the open house held in June 2009, residents living in the project area showed strong interest in this alternative. Residents at the reservoir site may think otherwise.

C. Real Estate Needs

Right-of-way and easement acquisition from the properties near the creek between Reaches 4 and 14 would be similar to the Alternative I.

The approximately 849 acres of open spaces between Anderson dam and Fisher Creek would be acquired for the detentions.

The 81 houses located at water front, would be acquired for the concerns of possible landslide,

D. Additional Project Considerations

The groundwater table for the vacant lands downstream of the reservoir is relatively high and, therefore, it limits the depth of the detention ponds. The possibility for those open lands to be used as detention pond also posed a constraint.

In addition, when the reservoir is releasing water at a rate of 1,500 cfs, the rapid drawdown of water surface would trigger landslide on the bank and the dam. At this point, there is no any reliable landslide information available for the reservoir banks and the dam. The further geotechnical investigation would be necessary to define the impact of the rapid drawdown.

E. Cost Estimate

Capital cost for the alternative would be $850–$1,050 million.

F. Technical Feasibility

This alternative is technically feasible. If a decision is made to pursue this alternative, the feasibility of obtaining adjacent right-of-way and appropriate mitigation will have to be assessed.

2.14 Alternative N (Offstream Detention Ponds, Reservoir From 90% TO 75%)

A. Alternative Description

The operation of Anderson Reservoir would be modified such that the water level in the reservoir would be lowered from 90% to 75% of the capacity 3 days prior to a forecasted 100-year storm. This would require replacement of the existing undersized outlet with a new 11 feet diameter outlet pipe. It is anticipated that the new outlet pipe would be releasing at about 2,880 cfs. With this modified operation, the anticipated 100-year peak flow at downstream of the reservoir would be reduced from 15,000 cfs to approximately 10,000 cfs.

As the existing channel capacity of Coyote Creek between I-280 and upstream of Lower silver Creek confluence is about 7,000 cfs, the 100-year peak flow from the upstream reach would need to be further reduced to minimize channel improvement on the existing channel. To attenuate the peak flow from 10,000 cfs to 7,000 cfs, detention ponds adjacent to the Coyote Creek would be constructed. The detention ponds would have a surface area of approximately 508 acre with depth varying from 5 to 25 feet at 4:1 side slope. The basins would provide approximately 5,602 acre-ft. of temporary flood storage. An overflow weir structure would be installed to divert flow from the adjacent creek channel into the ponds. Outfall pipes would also be constructed to allow stored water to flow back into the creek after the peak flood has passed. In addition, a flap gate or other back flow prevention device would be installed in the outfall structure to prevent flow from entering the ponds from the downstream.

The most open spaces, identified as potential detention areas, are owned by Santa Clara County and have been designated as future parks in their land use master plan. Given the fact that the 100-year flood would occur at 1% probability, the detention basin areas can also be designed for recreational uses at off-storm seasons. Proper maintenance should be performed after the park is used as flood detention.

Even though the upstream detention ponds would reduce the flood to downstream, the reduction is not sufficient to eliminate the need for channel improvement downstream of Hwy 101. For reaches from Montague Expressway to Lower Silver Creek confluence, the channel improvements are similar to Alternative I.

B. Project Objectives

Objective 1: Provide 1% Flood Protection

This alternative would meet the objective of providing flood protection in project reaches by widening the creek and installing flood walls/levees to increase channel capacity at downstream and constructing a series of detention ponds to reduce the 100-year flow in the creek. The hydraulic modeling indicates that the improved channel would have sufficient capacity for the reduced flow and meet freeboard requirements.

Objective 2: Identify Stream Habitat Enhancement and/or Restoration Opportunities

At downstream reaches from 4 to 10, this alternative would provide opportunities to improve ecological stream functions by widening the channel and removing the invasive plants along the creek.

At upstream, since the creek would remain unchanged, the objective would not be met.

Objective 3: Identify Opportunities to Improve Water Quality

This alternative may provide opportunities to improve water quality by increasing the sediment transport capacity through changes in the current channel geometry. The enlarged channel would slow down the sediment transport and cause deposition of sediments, that has a potential to change pool-riffle reaches and may improve water quality.

However, the upstream reaches from 11a to 14 would still have water quality issues.

Objective 4: Identify Opportunities to Provide Public Recreation and Access

This alternative would identify opportunities to provide public recreation and access by incorporating new maintenance roads and CSJ's Master Trail Plan in the study.

Objective 5: Minimize the Need for Future Operation and Maintenance Activities and Create a Self-sustaining System

Current operation and maintenance practices would be expanded to include the new facilities provided by this alternative. Typical maintenance activities will include vegetation management in the lower floodplain benches, vegetation (overgrowth) removal, erosion repair in natural sections, sediment removal, trash and debris removal, and graffiti removal. The new maintenance road/trails will give the District staff accesses to the creek and provide services to the community.

The new facilities described in this alternative would drastically increase the annual operations and maintenance costs compared to the existing conditions because of the additional right of way and maintenance requirements of the constructed improvements. The addition of maintenance roads/trails, levees, floodwalls and flood benches will require routine maintenance such as herbicide application, trimming and vegetation removal, invasive plant species removal and animal control, levee/bank/channel repairs, removing sediment, and graffiti removal. However, it is also expected that the multi-staged channel in this alternative will allow for natural river processes to transport sediment and scour vegetation from the low flow channel, effectively reducing the amount of sediment removal and vegetation management activities required to maintain the channel to design capacity.

For this alternative, it is anticipated with increased public access and maintenance roads that the District's cost for trash and debris removal would also increase considerably due to greater public awareness of trash and debris within the channel. Coordination with the City of San Jose on redesigning the drainage networks to Coyote Creek may alleviate some costs for trash removal in the creeks if the drainage networks are outfitted with debris collection devices. Additionally, opening up the creek corridor through creation of flood benches may decrease the number of homeless encampments that are currently found within the project limits.

Objective 6: Obtain Community Support

The Mid-Coyote creek flood protection project is funded for planning, design and partial construction under the Clean, Safe Creek Program. The project is to provide environmental quality, community benefit and protection from creek flooding in a cost effective manner. This is accomplished through integrated planning and management that considers the physical, hydrologic and ecologic functions and processes of streams within the community setting.

In the open house held in June 2009, residents living in the project area showed strong interest in this alternative. Residents at the reservoir site may think otherwise.

C. Real Estate Needs

Right-of-way and easement acquisition from the properties near the creek between Reaches 4 and 14 would be similar to the Alternative I.

The approximately 508 acres of open spaces between Anderson dam and Fisher Creek would be acquired for the detentions.

The 81 houses located at water front, would be acquired for the concerns of possible landslide,

D. Additional Project Considerations

The groundwater table for the vacant lands downstream of the reservoir is relatively high and, therefore, it limits the depth of the detention ponds. The scarcity of available vacant lands downstream of the reservoir also posed a constraint.

In addition, when the reservoir is releasing water at a rate of 2,880 cfs, the rapid drawdown of water surface would trigger landslide on the bank and the dam. At this point, there is no any reliable landslide information available for the reservoir banks and the dam. The further geotechnical investigation would be necessary to define the impact of the rapid drawdown.

E. Cost Estimate

Capital cost for the alternative would be $700–$840 million.

F. Technical Feasibility

This alternative is technically feasible. If a decision is made to pursue this alternative, the feasibility of obtaining adjacent right-of-way and appropriate mitigation will have to be assessed.

2.15 Alternative O (Upstream Detention Ponds and Downstream Bypass)

A. Alternative Description

The improvements would include an underground bypass culvert downstream of Interstate 280 and a series of detention ponds between Anderson Reservoir and Fisher Creek to reduce peak flow in project reaches.

For this alternative, the Anderson Reservoir was assumed at 90% full prior to the 100-year storm. The 100-year flow rate at the reservoir spillway would be about 15,000 cfs. With the inflow from Fisher Creek and the local drainage, the 100-year flow at I-280 would be 17,000 cfs.

As the existing channel capacity of Coyote Creek between I-280 and upstream of Lower silver Creek confluence is about 7,000 cfs, if the bypass could carry about 4,000 cfs of the peak flow, the 100-year peak flow from the upstream reach would need to be further reduced to 11,000 cfs through detention ponds adjacent to the Coyote Creek.

The detention ponds would have a surface area of approximately 836 acres with an average depth of approximately 11 feet with 4:1 side slope. The ponds could provide approximately 9000 acre-ft. of temporary flood storage. An overflow weir structure would be installed to divert flow from the adjacent creek into the ponds. Outfall pipes would also be constructed to allow stored water to flow back into the creek after the peak flood has passed. In addition, a flap gate or other back flow prevention device would be installed in the outfall structure to prevent flow from entering the ponds from the downstream.

The underground bypass would be a 20-foot-by-20-foot concrete box culvert constructed beneath south 17th Street with inlet at the District's outdoor classroom and outlet at Mabury Road Bridge at Coyote Creek. The invert of the inlet structure would be at bankful elevation, about 4 feet higher than creek invert elevation, but the outlet would be at the same as channel invert at 300 feet downstream of Mabury Road Bridge at Coyote Creek. The bypass culvert would be approximately 8,900 feet long from 17th Street to the intersection of Mission Street and 3,700 feet long from underneath Mission Street to Mabury Road Bridge at Coyote Creek. Construction of the bypass would be completed in sections to minimize road closures and traffic disruption. Traffic and existing utilities in the roadways (17th and Mission Streets) would be temporary interrupted during construction of the bypass culvert.

Even though the upstream detention ponds and the bypass would reduce the flood to downstream, the reduction is not sufficient to eliminate the need for channel improvement downstream of Lower Silver Creek confluence. For reaches from Montague Expressway to Lower Silver Creek confluence, the channel improvements are similar to Alternative I.

B. Project Objectives

Objective 1: Provide 1% Flood Protection

This alternative would meet the objective of providing flood protection in project reaches by increasing channel hydraulic capacity between Montague Expressway and Lower Silver Creek confluence and reducing flow in the creek between Lower Silver Creek and I-280.

The hydraulic modeling indicates that the improved channel would have sufficient capacity for the reduced flow and meet freeboard requirements.

Objective 2: Identify Stream Habitat Enhancement and/or Restoration Opportunities

At downstream reaches from 4 to 10, this alternative would provide opportunities to improve ecological stream functions by widening the channel and removing the invasive plants along the creek.

At upstream, since the creek would remain unchanged, the objective would not be met.

Objective 3: Identify Opportunities to Improve Water Quality

This alternative may provide opportunities to improve water quality by increasing the sediment transport capacity through changes in the current channel geometry. The enlarged channel would slow down the sediment transport and cause deposition of sediments, that has a potential to change pool-riffle reaches and may improve water quality.

However, the upstream reaches from 11a to 14 would still have water quality issues.

Objective 4: Identify Opportunities to Provide Public Recreation and Access

This alternative would identify opportunities to provide public recreation and access by incorporating new maintenance roads and CSJ's Master Trail Plan in the study.

Objective 5: Minimize the Need for Future Operation and Maintenance Activities and Create a Self-sustaining System

Current operation and maintenance practices would be expanded to include the new facilities provided by this alternative. Typical maintenance activities will include vegetation management in the lower floodplain benches, vegetation (overgrowth) removal, erosion repair in natural sections, sediment removal, trash and debris removal, and graffiti removal. The new maintenance road/trails will give the District staff accesses to the creek and provide services to the community.

The new facilities described in this alternative would drastically increase the annual operations and maintenance costs compared to the existing conditions because of the additional right of way and maintenance requirements of the constructed improvements. The addition of maintenance roads/trails, levees, floodwalls and flood benches will require routine maintenance such as herbicide application, trimming and vegetation removal, invasive plant species removal and animal control, levee/bank/channel repairs, removing sediment, and graffiti removal. However, it is also expected that the multi-staged channel in this alternative will allow for natural river processes to transport sediment and scour vegetation from the low flow channel, effectively reducing the amount of sediment removal and vegetation management activities required to maintain the channel to design capacity.

For this alternative, it is anticipated with increased public access and maintenance roads that the District's cost for trash and debris removal would also increase considerably due to greater public awareness of trash and debris within the channel. Coordination with the City of San Jose on redesigning the drainage networks to Coyote Creek may alleviate some costs for trash removal in the creeks if the drainage networks are outfitted with debris collection devices. Additionally, opening up the creek corridor through creation of flood benches may decrease the number of homeless encampments that are currently found within the project limits.

Objective 6: Obtain Community Support

The Mid-Coyote Creek flood protection project is funded for planning, design and partial construction under the Clean, Safe Creek Program. The project is to provide environmental quality, community benefit and protection from creek flooding in a cost effective manner. This is accomplished through integrated planning and management that considers the physical, hydrologic and ecologic functions and processes of streams within the community setting.

In the open house held in June 2009, residents living in the project area showed strong interest in this alternative. Residents at the reservoir site may think otherwise.

C. Real Estate Needs

Right-of-way and easement acquisition from the properties near the creek would not be necessary; however, land rights for detention ponds would need to be purchased.

D. Additional Project Considerations

The ultimate location and alignment of the new bypass is not determined at this time. Construction of the new bypass might have an impact to the raw water pipeline under Mission Street.

The groundwater table for the vacant lands downstream of the reservoir is relatively high and therefore it limits the depth of the detention ponds. The scarcity of available vacant lands downstream of the reservoir also posed a constraint.

E. Cost Estimate

Capital cost for the alternative would be $810–$1,050 million.

F. Technical Feasibility

This alternative is technically feasible. If a decision is made to pursue this alternative, the feasibility of obtaining adjacent right-of-way and appropriate mitigation will have to be assessed.

2.16 Alternative P (Reservoir Modification and Downstream Bypass)

A. Alternative Description

The improvements would include modifications on current reservoir operations and an underground bypass culvert downstream of Interstate 280 to reduce peak flow in project reaches.

As discussed in Alternative L, the existing channel capacity of Coyote Creek between I-280 and upstream of Lower silver Creek confluence is about 7,000 cfs, if the bypass could carry about 4,000 cfs of the peak flow, the 100-year peak flow could be as high as 11,000 cfs. The hydrological modeling indicates that the peak flow would be reduced to 11,000 cfs provide that the initial storage in the Anderson reservoir is at 74% full.

Therefore, the operation of Anderson Reservoir would be modified such that the water level in the reservoir would be lowered from 90% to 74% of the capacity 3 days prior to a forecasted 100-year storm. This would require replacement of the existing undersized outlet with a new 11 feet diameter outlet pipe. It is anticipated that the new outlet pipe would be releasing at about 2,450 cfs.

The underground bypass would be a 20-foot-by-20-foot concrete box culvert constructed beneath South 17th Street with inlet at District's outdoor classroom and outlet at Mabury Road Bridge at Coyote Creek. The invert of the inlet structure would be at bankfull elevation, about 4 feet higher than creek invert elevation, but the outlet would be at the same as channel invert at 300 feet downstream of Mabury Road Bridge at Coyote Creek. The bypass culvert would be approximately 8,900 feet long from 17th Street to the intersection of Mission Street and 3,700 feet long from underneath Mission Street to Mabury Road Bridge at Coyote Creek. Construction of the bypass would be completed in sections to minimize road closures and traffic disruption. Traffic and existing utilities in the roadways (17th and Mission Streets) would be temporary interrupted during construction of the bypass culvert.

Even though the upstream reservoir operation modification and bypss would reduce the flood to downstream, the reduction is not sufficient to eliminate the need for channel improvement downstream of Lower Silver Creek confluence. For reaches from Montague Expressway to Lower Silver Creek confluence, the channel improvements are similar to Alternative I.

B. Project Objectives

Objective 1: Provide 1% Flood Protection

This alternative would meet the objective of providing flood protection in project reaches by increasing channel hydraulic capacity between Montague Expressway and Lower Silver Creek confluence and reducing flow in the creek between Lower Silver Creek and I-280.

The hydraulic modeling indicates that the improved channel would have sufficient capacity for the reduced flow and meet freeboard requirements.

Objective 2: Identify Stream Habitat Enhancement and/or Restoration Opportunities

At downstream reaches from 4 to 10, this alternative would provide opportunities to improve ecological stream functions by widening the channel and removing the invasive plants along the creek.

At upstream, since the creek would remain unchanged, the objective would not be met.

Objective 3: Identify Opportunities to Improve Water Quality

This alternative may provide opportunities to improve water quality by increasing the sediment transport capacity through changes in the current channel geometry. The enlarged channel would slow down the sediment transport and cause deposition of sediments, that has a potential to change pool-riffle reaches and may improve water quality.

However, the upstream reaches from 11a to 14 would still have water quality issues.

Objective 4: Identify Opportunities to Provide Public Recreation and Access

This alternative would identify opportunities to provide public recreation and access by incorporating new maintenance roads and CSJ's Master Trail Plan in the study.

Objective 5: Minimize the Need for Future Operation and Maintenance Activities and Create a Self-sustaining System

Current operation and maintenance practices would be expanded to include the new facilities provided by this alternative. Typical maintenance activities will include vegetation management in the lower floodplain benches, vegetation (overgrowth) removal, erosion repair in natural sections, sediment removal, trash and debris removal, and graffiti removal. The new maintenance road/trails will give the District staff accesses to the creek and provide services to the community.

The new facilities described in this alternative would drastically increase the annual operations and maintenance costs compared to the existing conditions because of the additional right of way and maintenance requirements of the constructed improvements. The addition of maintenance roads/trails, levees, floodwalls and flood benches will require routine maintenance such as herbicide application, trimming and vegetation removal, invasive plant species removal and animal control, levee/bank/channel repairs, removing sediment, and graffiti removal. However, it is also expected that the multi-staged channel in this alternative will allow for natural river processes to transport sediment and scour vegetation from the low flow channel, effectively reducing the amount of sediment removal and vegetation management activities required to maintain the channel to design capacity.

For this alternative, it is anticipated with increased public access and maintenance roads that the District's cost for trash and debris removal would also increase considerably due to greater public awareness of trash and debris within the channel. Coordination with the City of San Jose on redesigning the drainage networks to Coyote Creek may alleviate some costs for trash removal in the creeks if the drainage networks are outfitted with debris collection devices. Additionally, opening up the creek corridor through creation of flood benches may decrease the number of homeless encampments that are currently found within the project limits.

Objective 6: Obtain Community Support

The Mid-Coyote Creek flood protection project is funded for planning, design and partial construction under the Clean, Safe Creek Program. The project is to provide environmental quality, community benefit and protection from creek flooding in a cost effective manner. This is accomplished through integrated planning and management that considers the physical, hydrologic and ecologic functions and processes of streams within the community setting.

In the open house held in June 2009, residents living in the project area showed strong interest in this alternative. Residents at the reservoir site may think otherwise.

C. Real Estate Needs

Right-of-way and easement acquisition from the properties near the creek between Reaches 4 and 14 would be similar to the alternative I.

The 81 houses located at water front, would be acquired for the concerns of possible landslide,

D. Additional Project Considerations

Construction of the new bypass might have an impact to the raw water pipeline if constructed under Mission Street.

The ultimate location and alignment of the new outlet pipe from Anderson Reservoir to the creek is not determined at this time. Construction of the new outlet pipe will have an impact to the structural integrity of the Anderson Dam. Rapid drawdown from 90% to 74% water level could have an impact to the upstream properties located adjacent to the reservoir.

Seismic stability of both dams has been a concern. Dam Safety Program Unit is conducting a study on these issues. The study results will be incorporated in this planning study.

E. Cost Estimate

Capital cost for the alternative would be $520–$600 million.

F. Technical Feasibility

This alternative is technically feasible. If a decision is made to pursue this alternative, the feasibility of obtaining adjacent right-of-way and appropriate mitigation will have to be assessed.

2.17 Alternative Q (Coyote and Anderson Reservoir Operation Modifications)

A. Alternative Description

The improvements would include both Anderson Reservoir and Coyote Reservoir operation modification (see Fig. Alt. Q). Coyote Reservoir regulates a total watershed of 119 square miles and impounds storage of approximately 24,000 acre-feet. The old 50" outlet of was abandoned and a new 48" diameter pipe was installed in 1992. The 48" pipe open to an arch shaped tunnel and transit the release water from pressure flow to an open channel flow. The tunnel, at a slope of 0.052, is 8 feet in height and 8 feet in width, and was constructed under the requirement of the DOSD due to seismic concerns.

In this alternative, the operation of Coyote Reservoir would be modified such that the water level in the reservoir would be lowered from initial 70% to 10% of the storage capacity three days prior to a forecasted 100-year storm through a new 15' diameter pipe.

The operation of Anderson Reservoir would be kept at 80% full and it is anticipated that the 3,620 cfs of inflow from Coyote Reservoir would be released through a new 13-feet diameter pipe from Anderson Reservoir into the Coyote Creek at the same time. This operation scheme would mitigate the potential draw down impact to adjacent properties.

With this modified operation procedure for both reservoirs, the Coyote Reservoir would be used as major flood control facility and the anticipated 100-year peak flow at downstream of Interstate 280 would be reduced to approximately 7,000 cfs.

Even though the upstream reservoir operation modification would reduce the flood to downstream, the reduction is not sufficient to eliminate the need for channel improvement downstream of Hwy 101. For reaches from Montague Expressway to Lower Silver Creek confluence, the channel improvements are similar to Alternative I.

B. Project Objectives

Objective 1: Provide 1% Flood Protection

This alternative would meet the objective of providing flood protection in project reaches by increasing channel hydraulic capacity between Montague Expressway and Lower Silver Creek confluence and reducing flow in the creek between Lower Silver Creek and I-280.

The hydraulic modeling indicates that the improved channel would have sufficient capacity for the reduced flow and meet freeboard requirements.

Objective 2: Identify Stream Habitat Enhancement and/or Restoration Opportunities

At downstream reaches from 4 to 10, this alternative would provide opportunities to improve ecological stream functions by widening the channel and removing the invasive plants along the creek.

At upstream, since the creek would remain unchanged, the objective would not be met.

Objective 3: Identify Opportunities to Improve Water Quality

This alternative may provide opportunities to improve water quality by increasing the sediment transport capacity through changes in the current channel geometry. The enlarged channel would slow down the sediment transport and cause deposition of sediments, that has a potential to change pool-riffle reaches and may improve water quality.

However, the upstream reaches from 11a to 14 would still have water quality issues.

Objective 4: Identify Opportunities to Provide Public Recreation and Access

This alternative would identify opportunities to provide public recreation and access by incorporating new maintenance roads and CSJ's Master Trail Plan in the study.

Objective 5: Minimize the Need for Future Operation and Maintenance Activities and Create a Self-sustaining System

Current operation and maintenance practices would be expanded to include the new facilities provided by this alternative. Typical maintenance activities will include vegetation management in the lower floodplain benches, vegetation (overgrowth) removal, erosion repair in natural sections, sediment removal, trash and debris removal, and graffiti removal. The new maintenance road/trails will give the District staff accesses to the creek and provide services to the community.

The new facilities described in this alternative would drastically increase the annual operations and maintenance costs compared to the existing conditions because of the additional right of way and maintenance requirements of the constructed improvements. The addition of maintenance roads/trails, levees, floodwalls and flood benches will require routine maintenance such as herbicide application, trimming and vegetation removal, invasive plant species removal and animal control, levee/bank/channel repairs, removing sediment, and graffiti removal. However, it is also expected that the multi-staged channel in this alternative will allow for natural river processes to transport sediment and scour vegetation from the low flow channel, effectively reducing the amount of sediment removal and vegetation management activities required to maintain the channel to design capacity.

For this alternative, it is anticipated with increased public access and maintenance roads that the District's cost for trash and debris removal would also increase considerably due to greater public awareness of trash and debris within the channel. Coordination with the City of San Jose on redesigning the drainage networks to Coyote Creek may alleviate some costs for trash removal in the creeks if the drainage networks are outfitted with debris collection devices. Additionally, opening up the creek corridor through creation of flood benches may decrease the number of homeless encampments that are currently found within the project limits.

Objective 6: Obtain Community Support

The Mid-Coyote Creek flood protection project is funded for planning, design and partial construction under the Clean, Safe Creek Program. The project is to provide environmental quality, community benefit and protection from creek flooding in a cost effective manner. This is accomplished through integrated planning and management that considers the physical, hydrologic and ecologic functions and processes of streams within the community setting.

In the open house held in June 2009, residents living in the project area showed strong interest in this alternative. Residents at the reservoir site may think otherwise.

C. Real Estate Needs

Right-of-way and easement acquisition from the properties near the creek between Reaches 4 and 14 would be similar to the Alternative I.

D. Additional Project Considerations

The ultimate location and alignment of the new outlet pipes are not determined at this time. Construction of the new outlet pipes would have an impact to the structural integrity of the Both Anderson and Coyote Dams.

Seismic stability of both dams has been a concern. Dam Safety Program Unit is conducting a study on these issues. The study results will be incorporated in this planning study.

E. Cost Estimate

Capital cost for the alternative would be $460–$610 million.

F. Technical Feasibility

This alternative is technically feasible. If a decision is made to pursue this alternative, the feasibility of obtaining adjacent right-of-way and appropriate mitigation will have to be assessed.

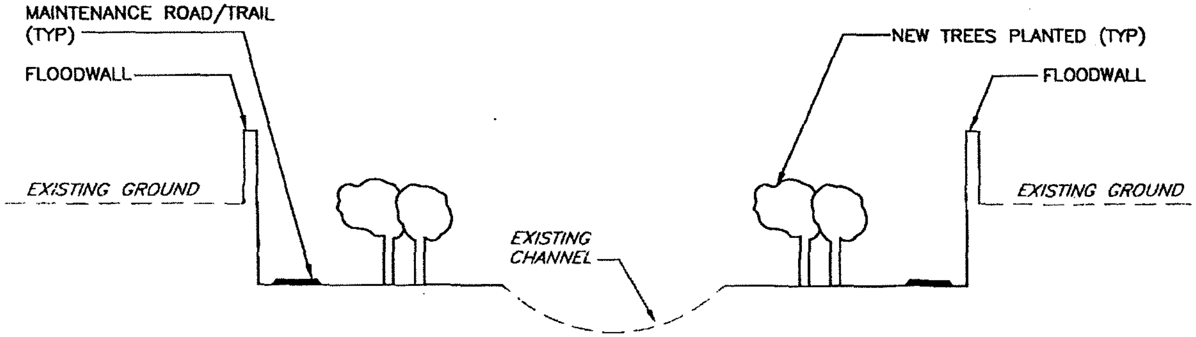

FIG 2–1 (TYP SECTION)

LOOKING DOWNSTREAM
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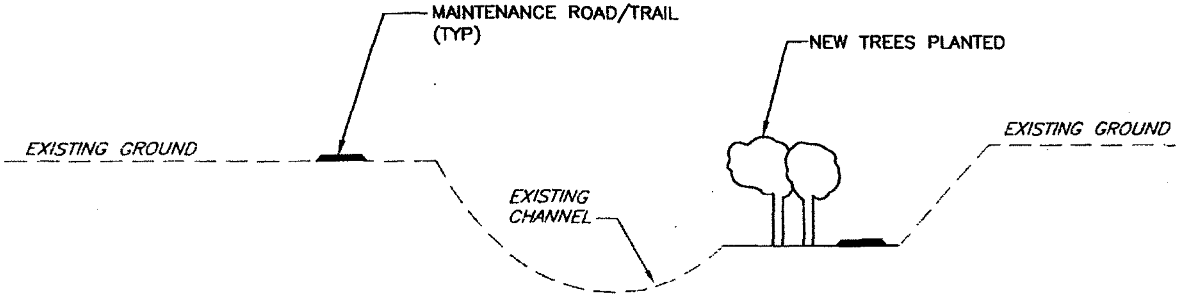

FIG 2–2 (TYP SECTION)

LOOKING DOWNSTREAM
SCALE: NTS

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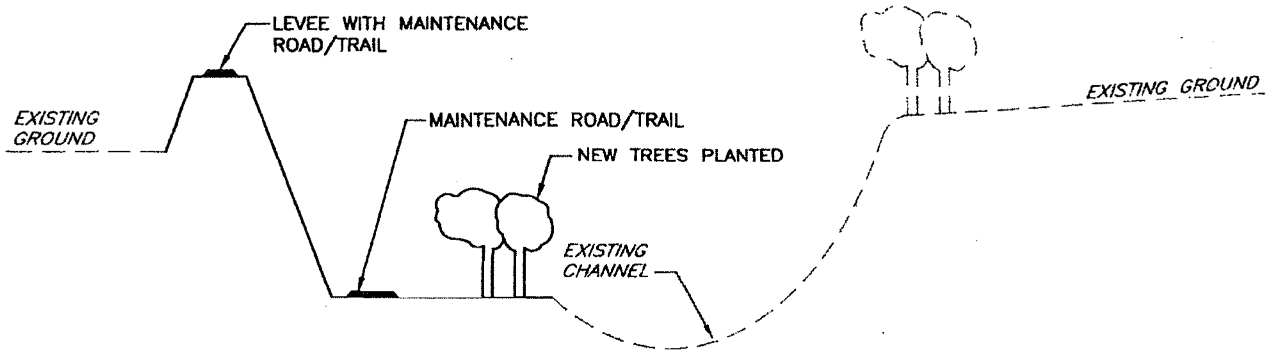

FIG 2-3 (TYP SECTION)

LOOKING DOWNSTREAM
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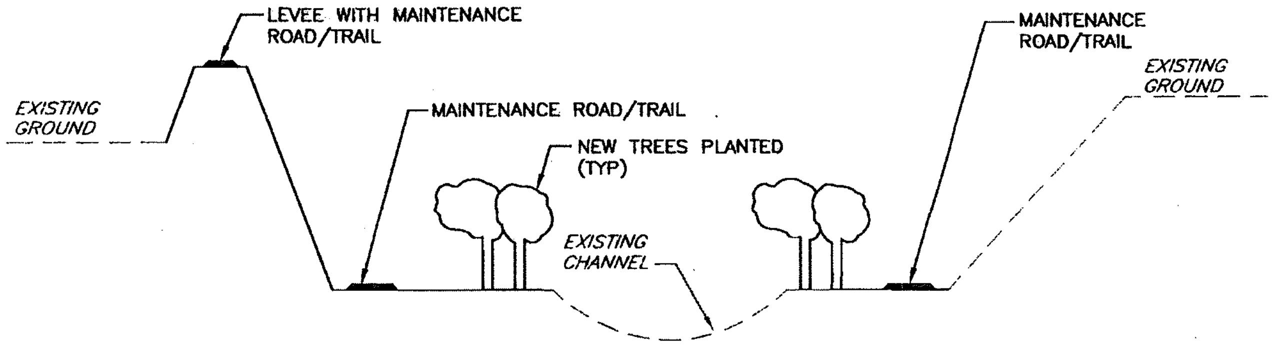

FIG 2-4 (TYP SECTION)

LOOKING DOWNSTREAM
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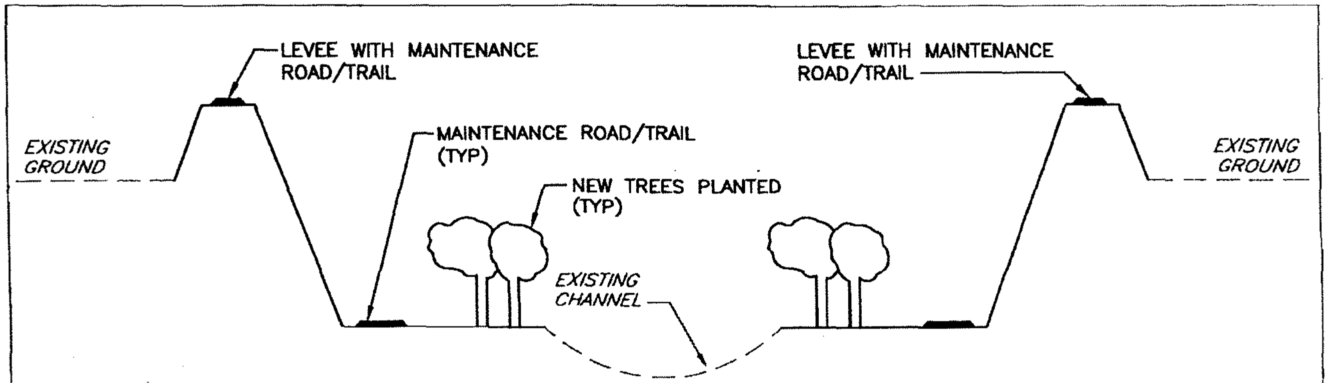
LEVEE WITH MAINTENANCE ROAD/TRAIL
LEVEE WITH MAINTENANCE ROAD/TRAIL
EXISTING GROUND
MAINTENANCE ROAD/TRAIL (TYP)
EXISTING GROUND
NEW TREES PLANTED (TYP)
EXISTING CHANNEL

FIG 2–5 (TYP SECTION)
LOOKING DOWNSTREAM
SCALE: NTS

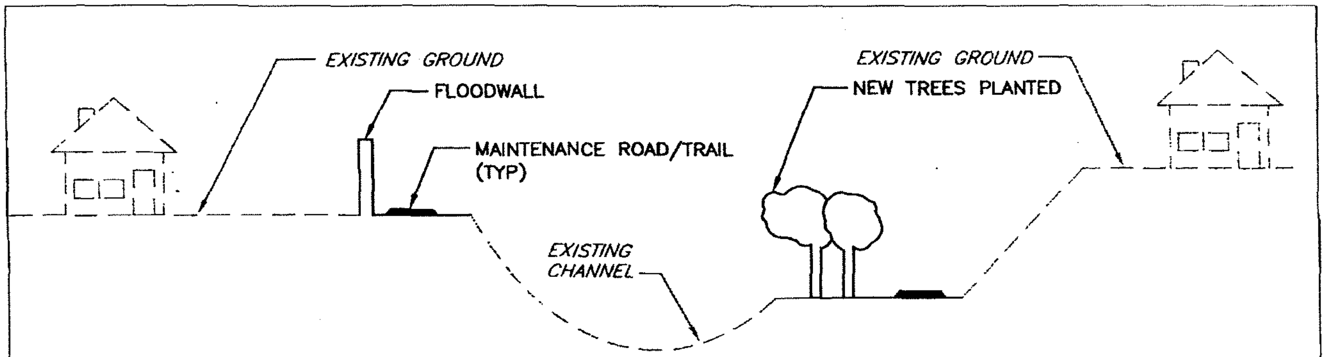

FIG 2–6 (TYP SECTION)
LOOKING DOWNSTREAM
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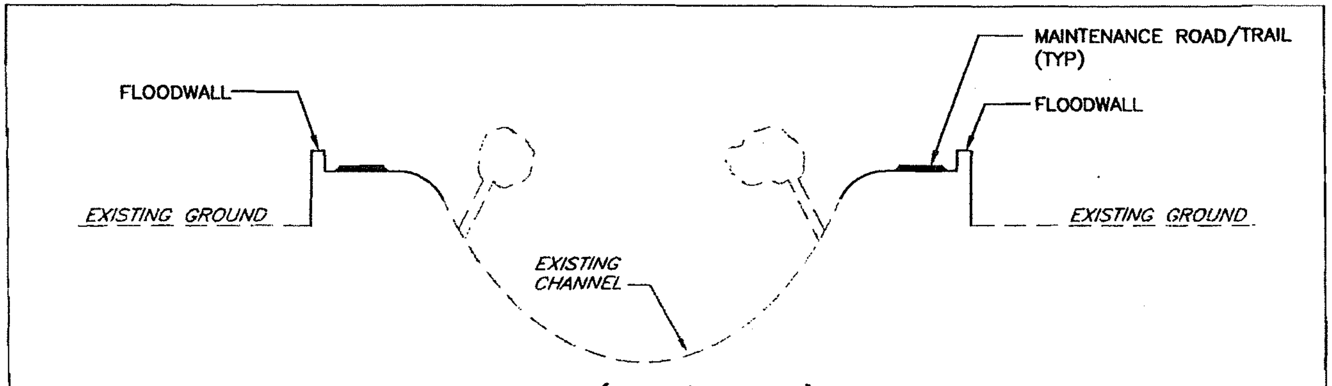

FIG 2-7 (TYP SECTION)
LOOKING DOWNSTREAM
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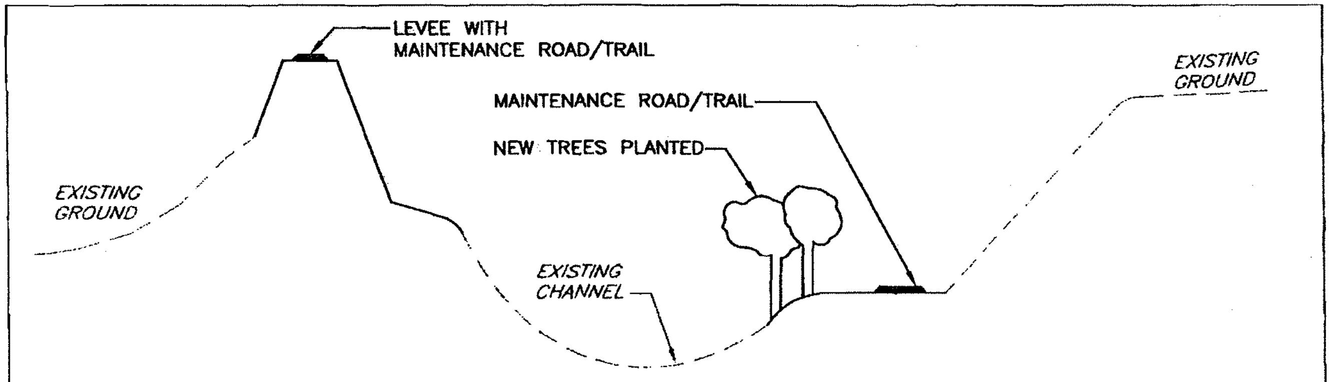

FIG 2-8 (TYP SECTION)
LOOKING DOWNSTREAM
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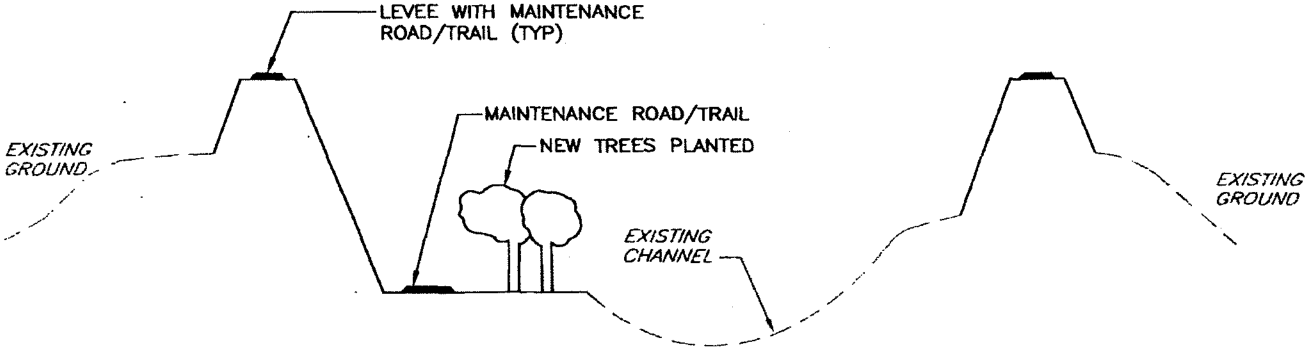

FIG 2-9 (TYP SECTION)
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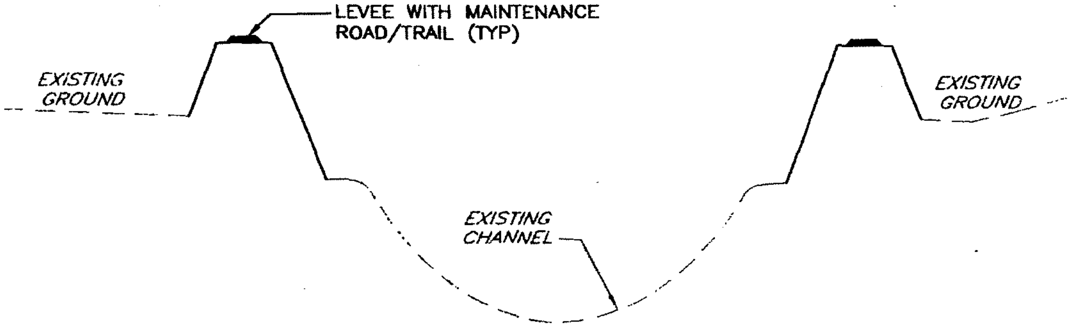

FIG 2-10 (TYP SECTION)
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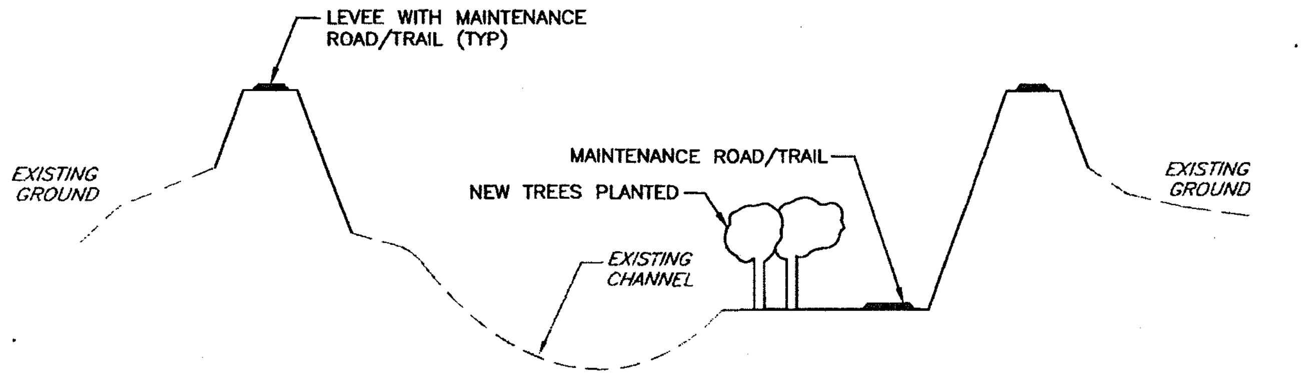

FIG 2–11 (TYP SECTION)
LOOKING DOWNSTREAM
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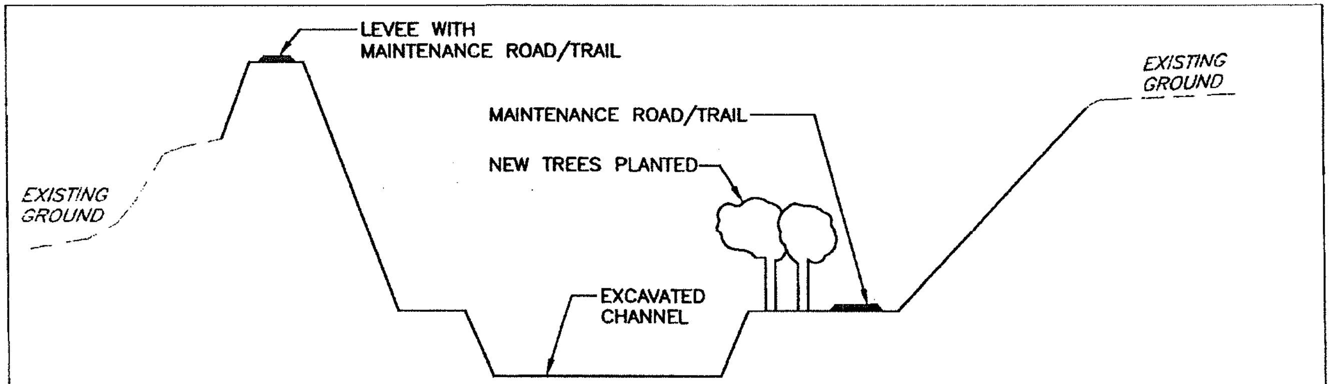

FIG 2–12 (TYP SECTION)
LOOKING DOWNSTREAM
SCALE: NTS

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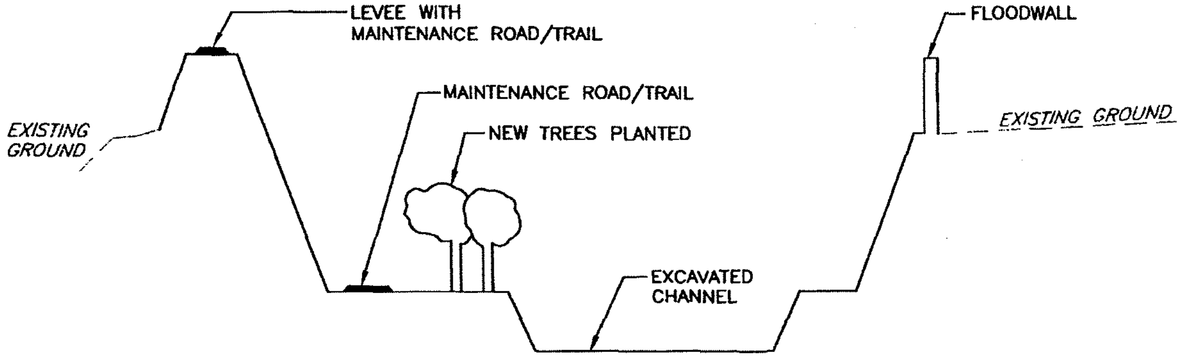


FIG 2–13 (TYP SECTION)
LOOKING DOWNSTREAM
SCALE: NTS

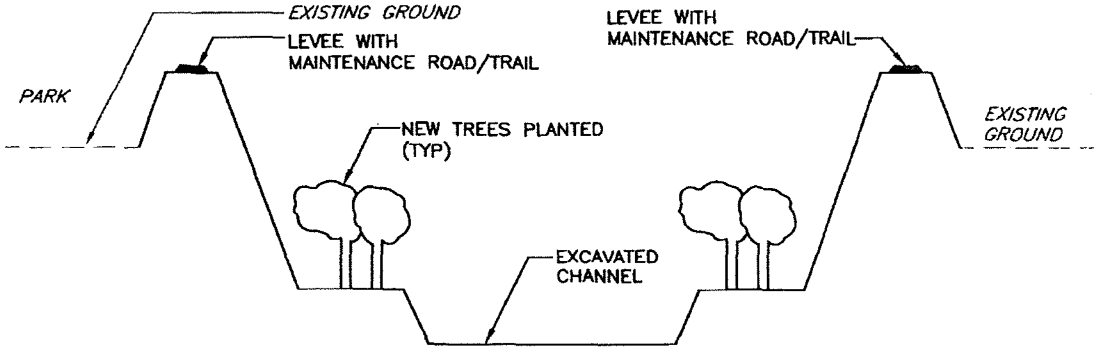
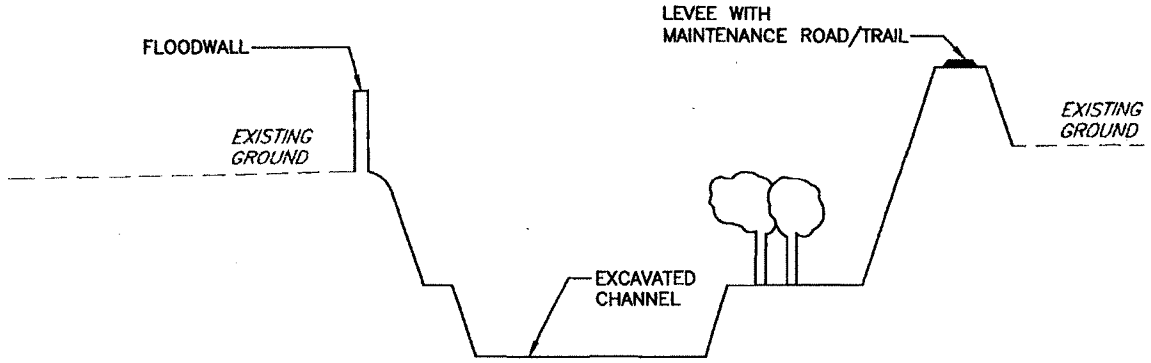


FIG 2–14 (TYP SECTION)
LOOKING DOWNSTREAM
SCALE: NTS

ILENAME: K:\Active Projects\MP-26174043\Mid-Coyote\Sheets\Misc\Figures\FIG 1-14 VER 1\OLDFIGURES 1-14 VER 1



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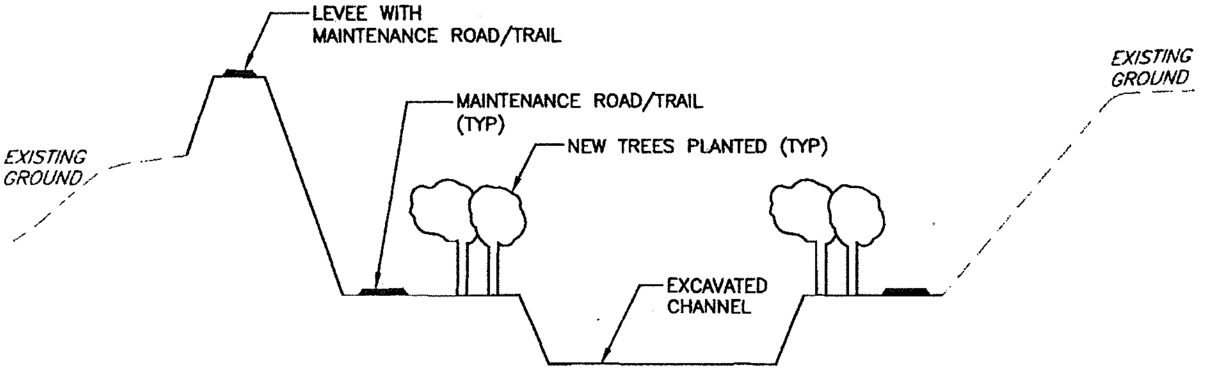

FIG 2–16 (TYP SECTION)
LOOKING DOWNSTREAM
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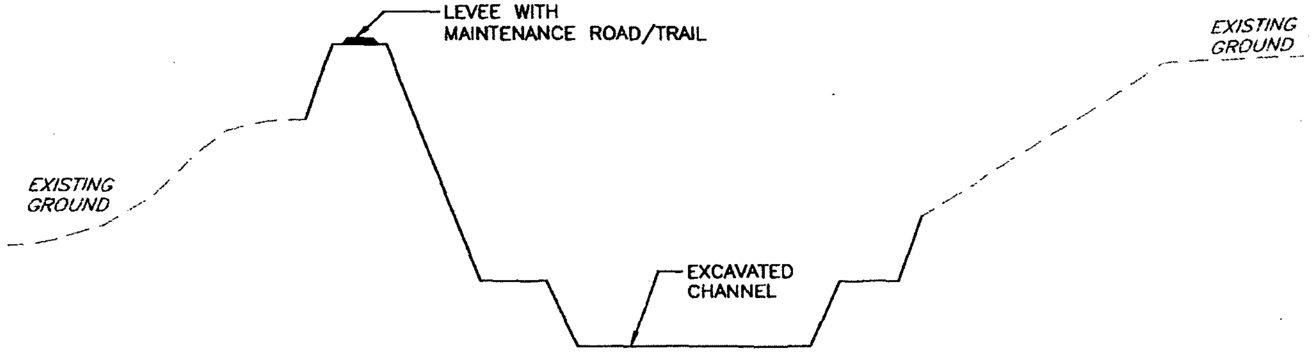

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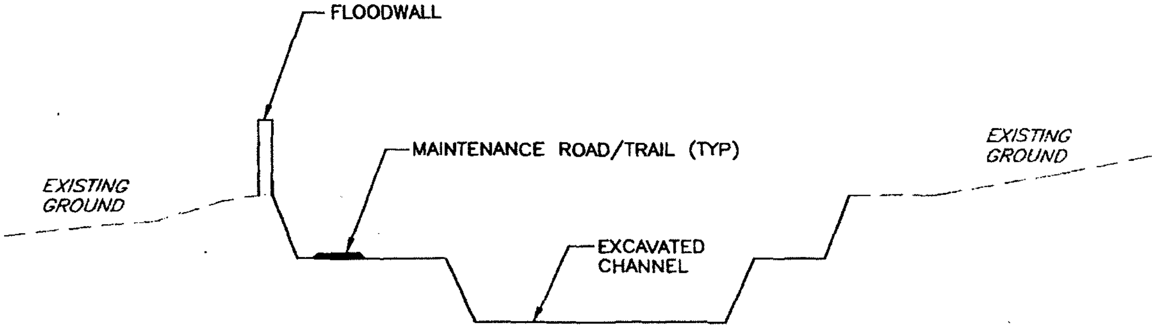
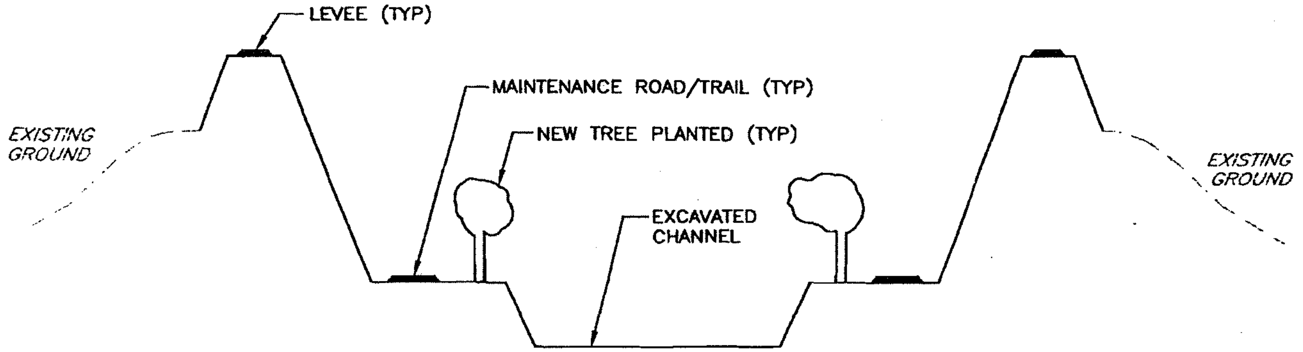


FIG 2-18 (TYP SECTION)
LOOKING DOWNSTREAM
SCALE: NTS

USERNAME: jossecord Fri 30 Jul 2010 02:29pm
FILENAME: K:\Active Projects\MP-28174043\Mid-Coyote\Sheets\Misc\Figures\FIG 1-14 VER 1\FIGURE 9



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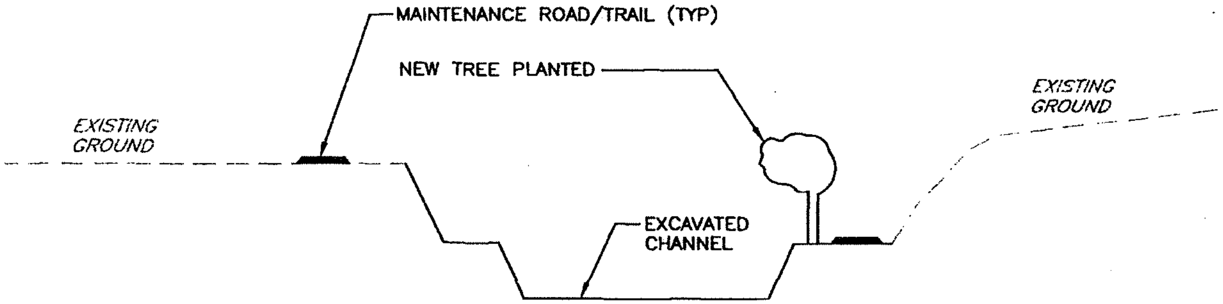

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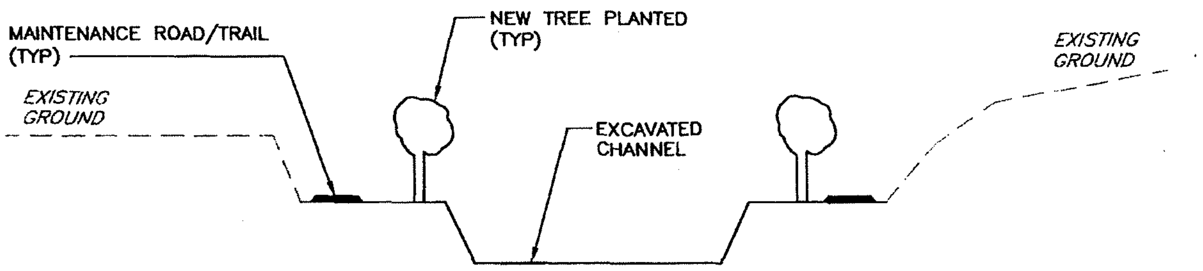

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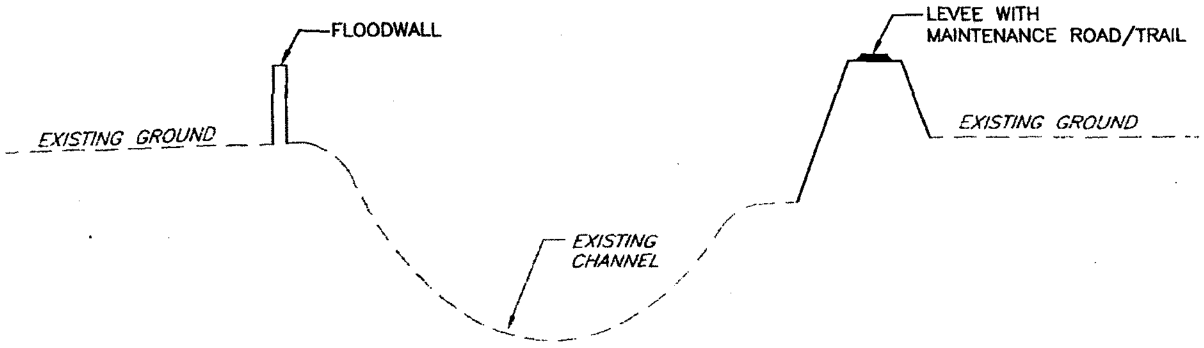

FIG 2–22 (TYP SECTION)
LOOKING DOWNSTREAM
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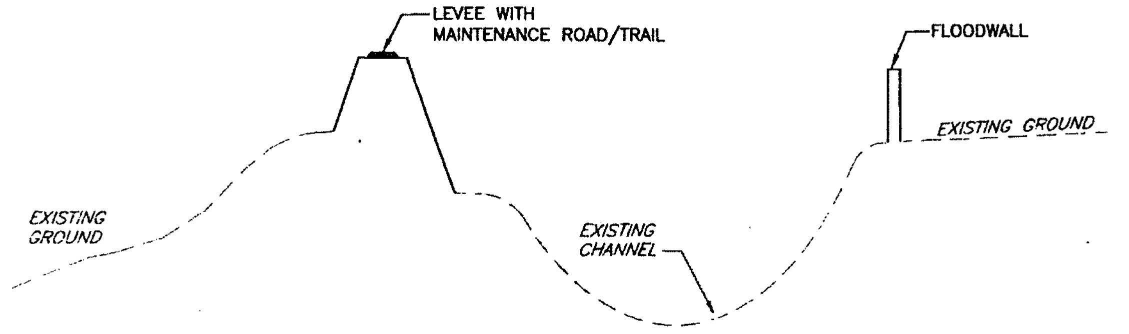
ERNAME: josecord Fri 30 Jul 2010 02:34pm
ENAME: K:\Active Projects\MP-26174043\Mid-Coyote\Sheets\Misc\Figures\FIG 1-14 VER 1\FIGURE 11



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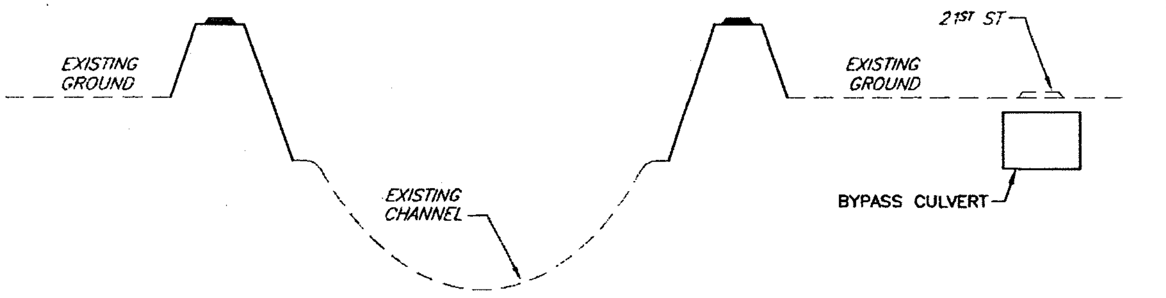

FIG 2-24 (TYP SECTION)
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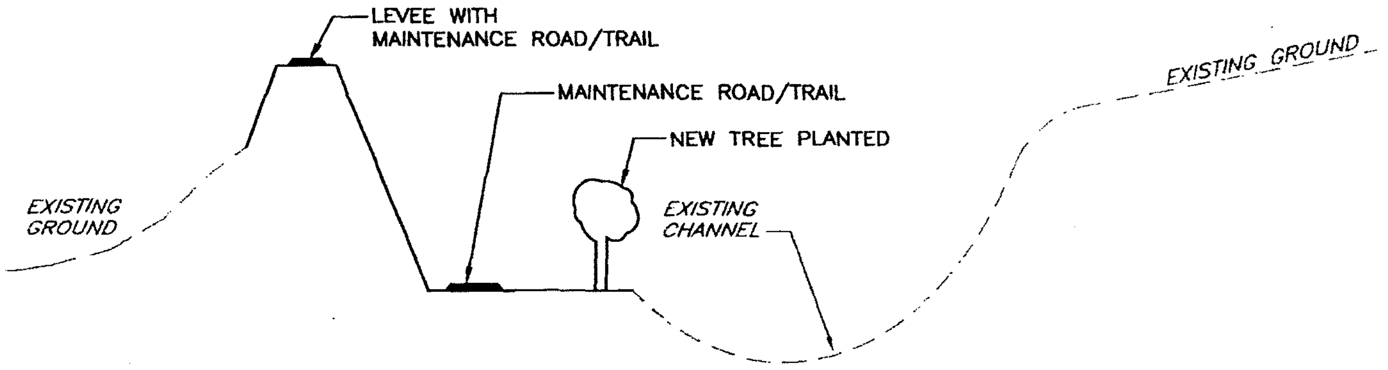
FILENAME: K:\Active Projects\MP-26174043\Mid-Coyote\Sheets\Misc\Figures\FIG 1-14 VER 1\OLDFIGURES 1-14 VER 1



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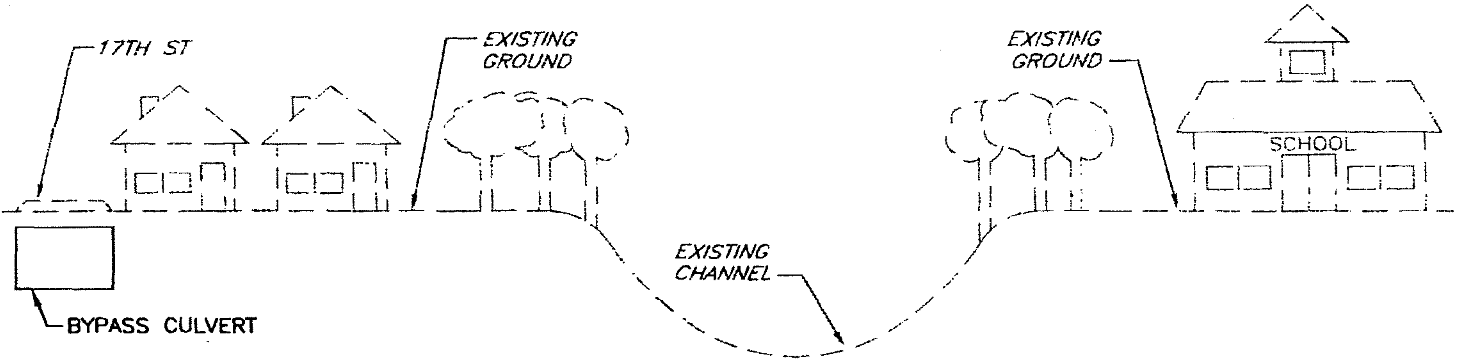

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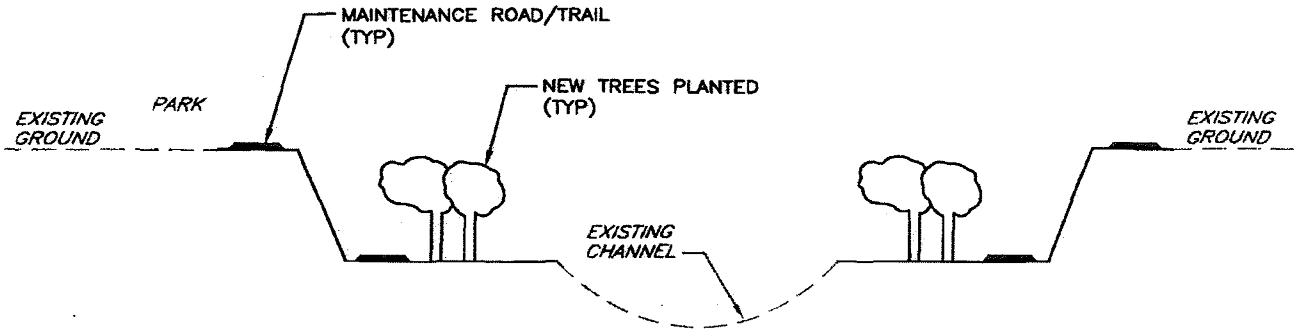

FIG 2–27 (TYP SECTION)
LOOKING DOWNSTREAM
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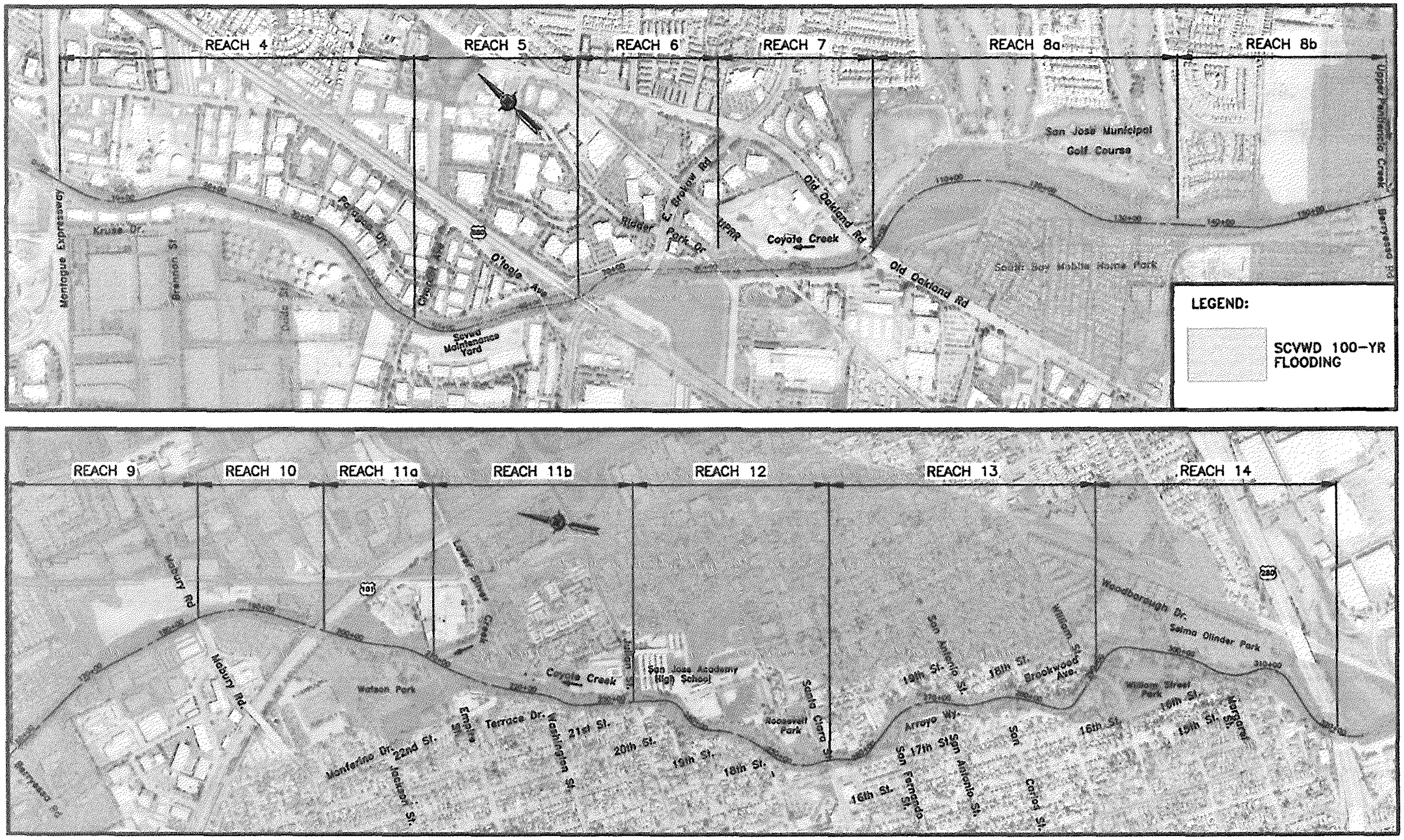
USERNAME: josecord Fri 30 Jul 2010 01:18pm
FILENAME: K:\Active Projects\MP-26174043\Mid-Coyote\Sheets\Misc\Figures\FIG 1-14 VER 1\FIGURE 14



REV | DESCRIPTION | DATE | APPR

REFERENCE INFORMATION AND NOTES

1. Aerial photography performed April 2003.

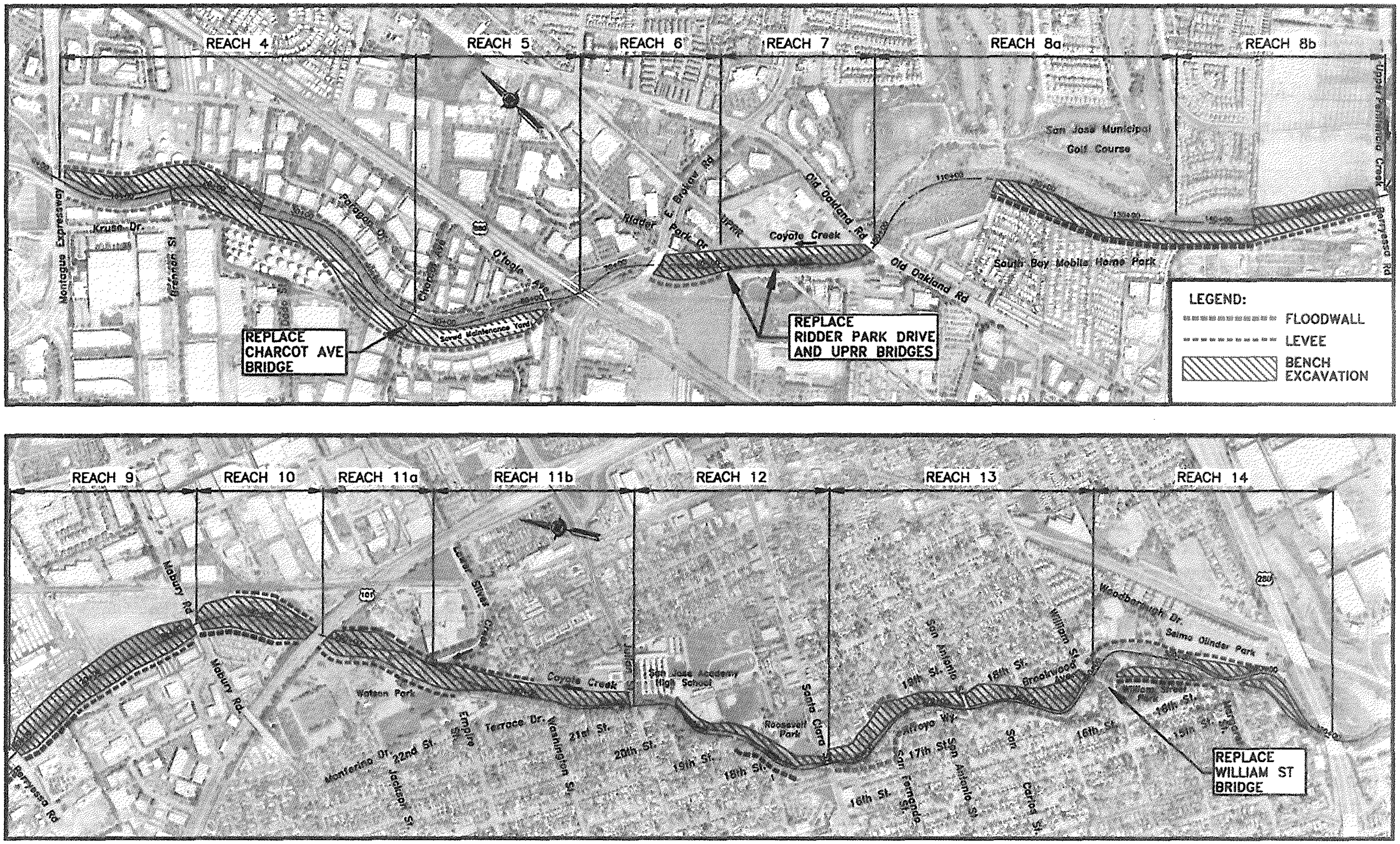
DATE 05/09
DESIGN KS/PR
DRAWN R. AGREDA
CHECKED ZS

Santa Clara Valley Water District

MID–COYOTE CREEK
CONCEPTUAL ALTERNATIVE A

SCALE NOT TO SCALE
VERIFY SCALES
0 1"
BAR IS ONE INCH ON ORIGINAL DRAWING IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

PROJECT NUMBER 26174043
SHEET CODE:
FIG Alt. A



REV | DESCRIPTION | DATE | APPR

REFERENCE INFORMATION AND NOTES

1. Aerial photography performed April 2003.

DATE 05/09
DESIGN KS/PR
DRAWN R. AGREDA
CHECKED ZS

Santa Clara Valley Water District

MID-COYOTE CREEK
CONCEPTUAL ALTERNATIVE B

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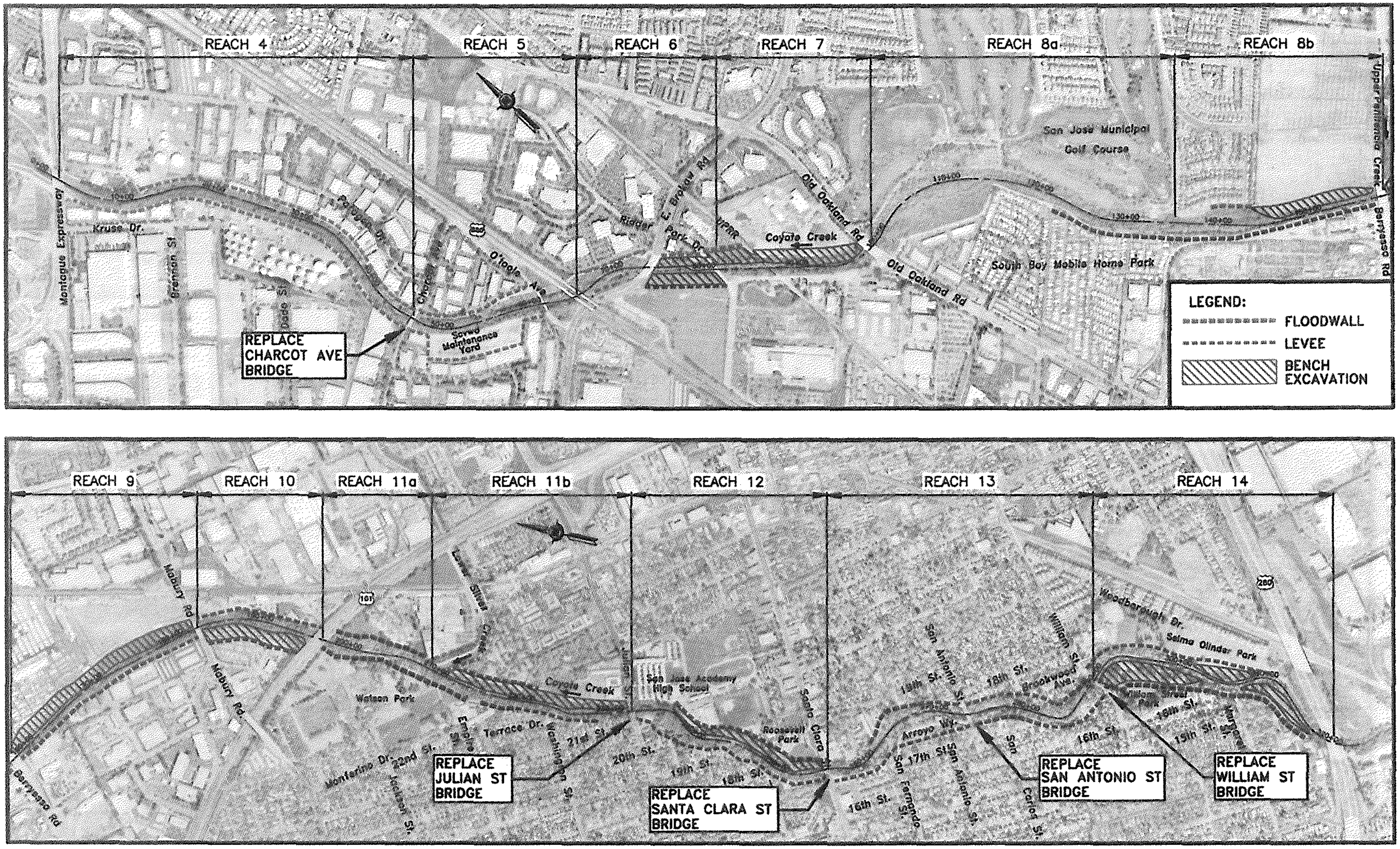
PROJECT NUMBER
28174043
SHEET CODE:
FIG
Alt. B



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REFERENCE INFORMATION AND NOTES

1. Aerial photography performed April 2003.

DATE 05/09
DESIGN KS/PR
DRAWN R. AGREDA
CHECKED ZS

Santa Clara Valley Water District

MID-COYOTE CREEK
CONCEPTUAL ALTERNATIVE C

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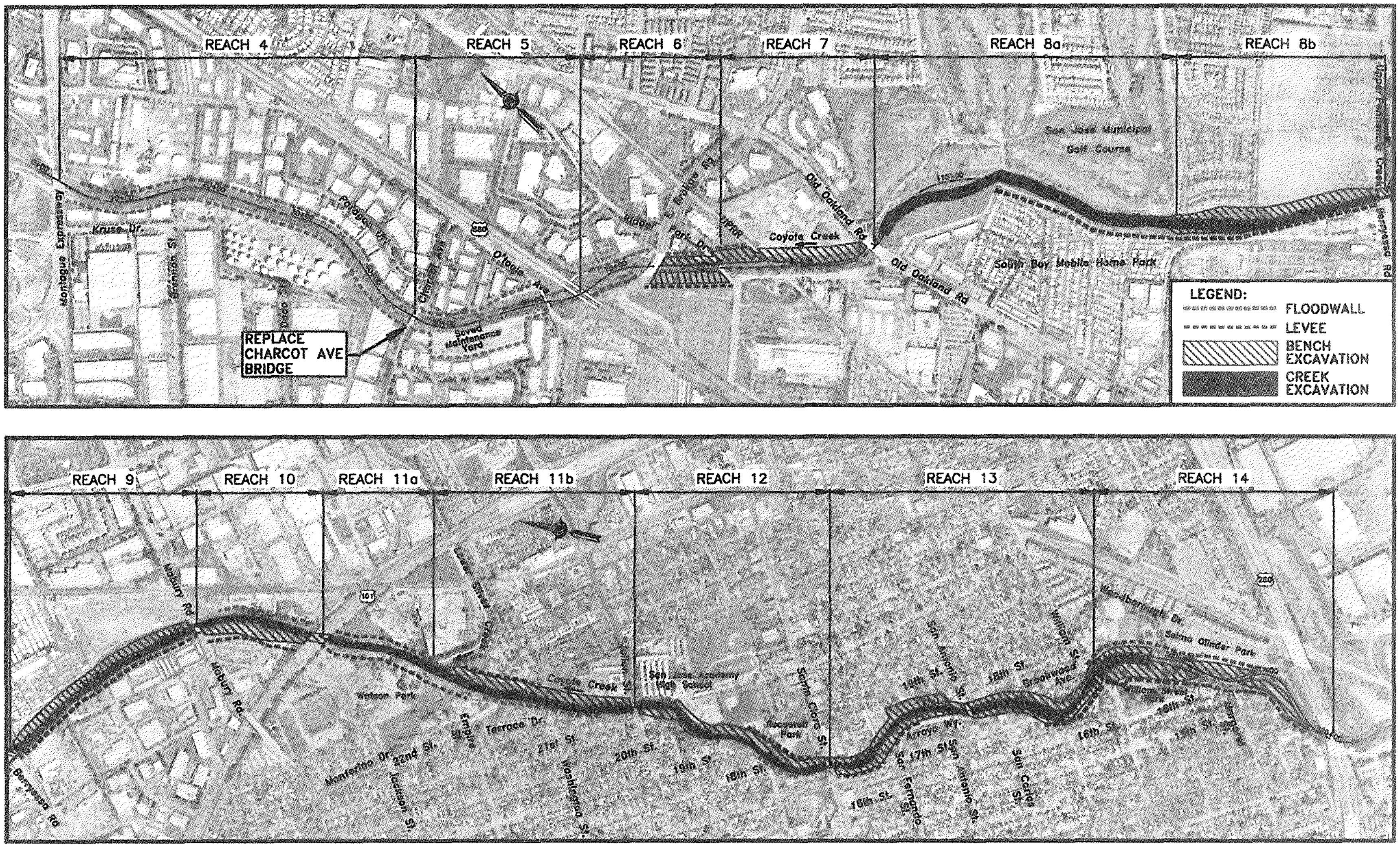
FIG Alt. C



REV	DESCRIPTION	DATE	APPR

REFERENCE INFORMATION AND NOTES

1. Aerial photography performed April 2003.

DATE 05/09
DESIGN KS/PR
DRAWN R. AGREDA
CHECKED ZS

Santa Clara Valley Water District

MID-COYOTE CREEK
CONCEPTUAL ALTERNATIVE D

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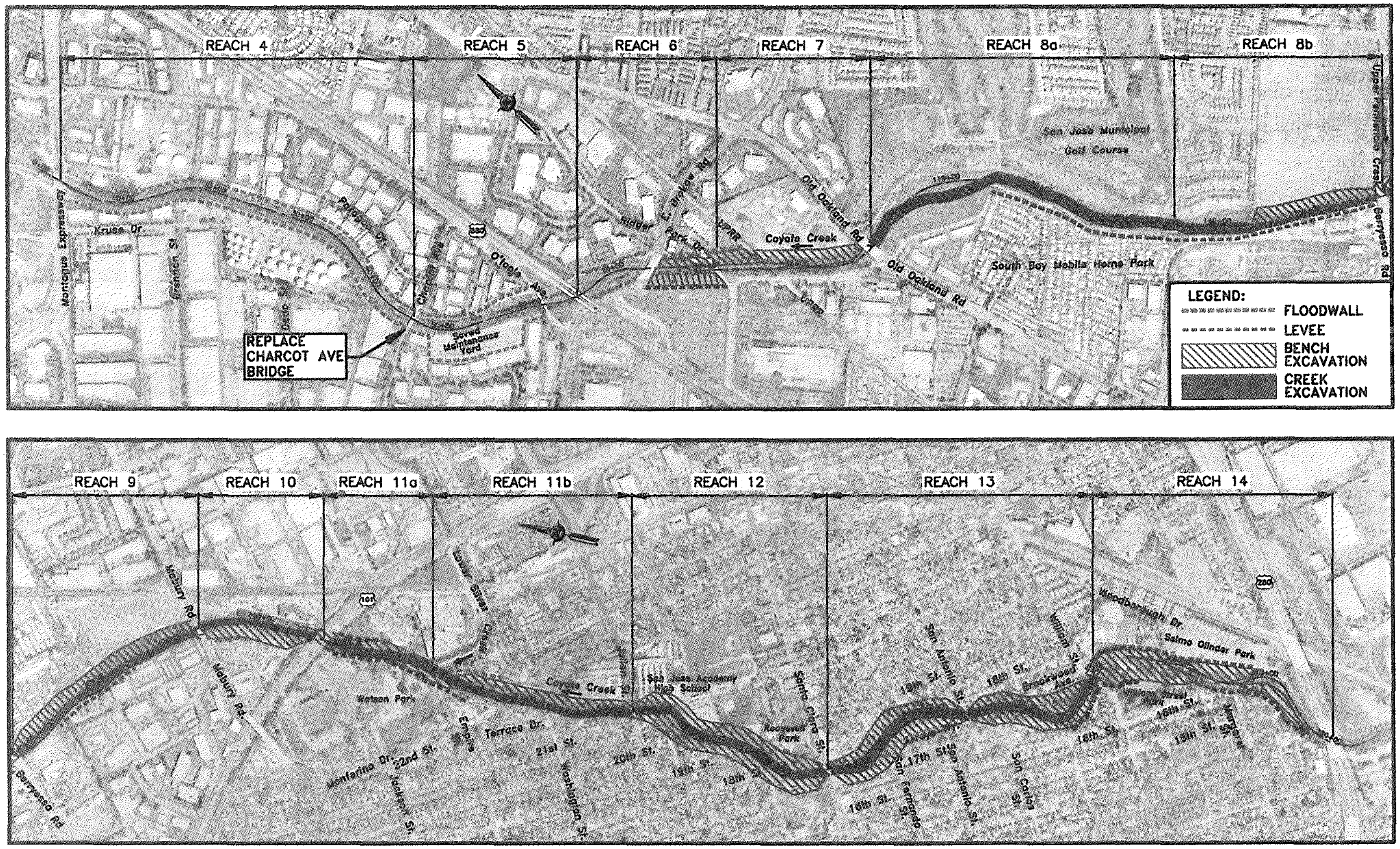
Alt. D



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DATE	04/09
DESIGN	KS/PR
DRAWN	R. AGREDA
CHECKED	ZS

Santa Clara Valley Water District

MID–COYOTE CREEK
CONCEPTUAL ALTERNATIVE E

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VERIFY SCALES	SHEET CODE:
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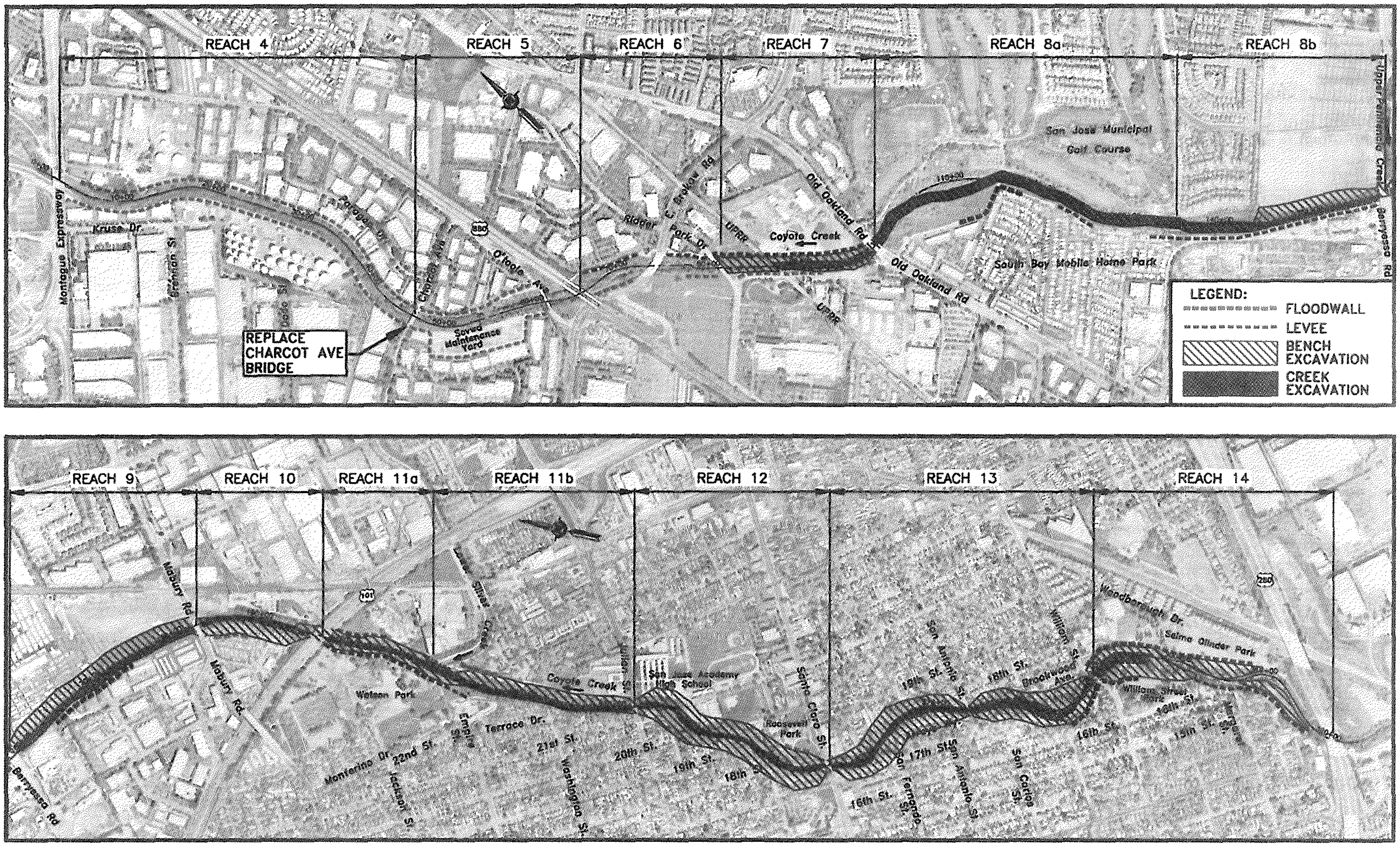

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DATE 05/09
DESIGN KS/PR
DRAWN R. AGREDA
CHECKED ZS

Santa Clara Valley Water District

MID–COYOTE CREEK
CONCEPTUAL ALTERNATIVE F

SCALE NOT TO SCALE
VERIFY SCALES 0 1"
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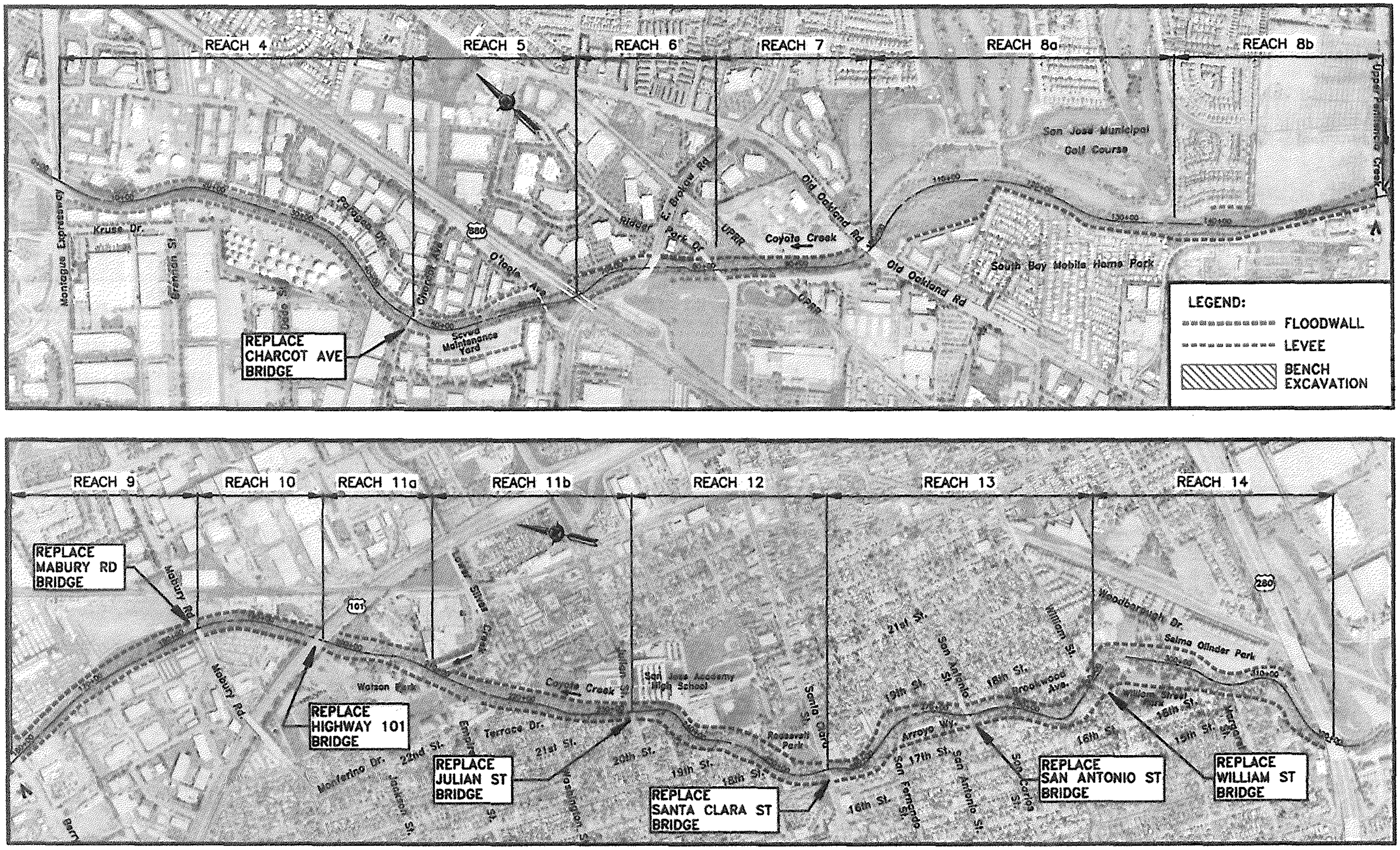

REV	DESCRIPTION	DATE	APPR

REFERENCE INFORMATION AND NOTES

1. Aerial photography performed April 2003.

DATE 05/09
DESIGN KS/PR
DRAWN R. AGREDA
CHECKED ZS

Santa Clara Valley Water District

MID-COYOTE CREEK
CONCEPTUAL ALTERNATIVE G

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PROJECT NUMBER 26174043
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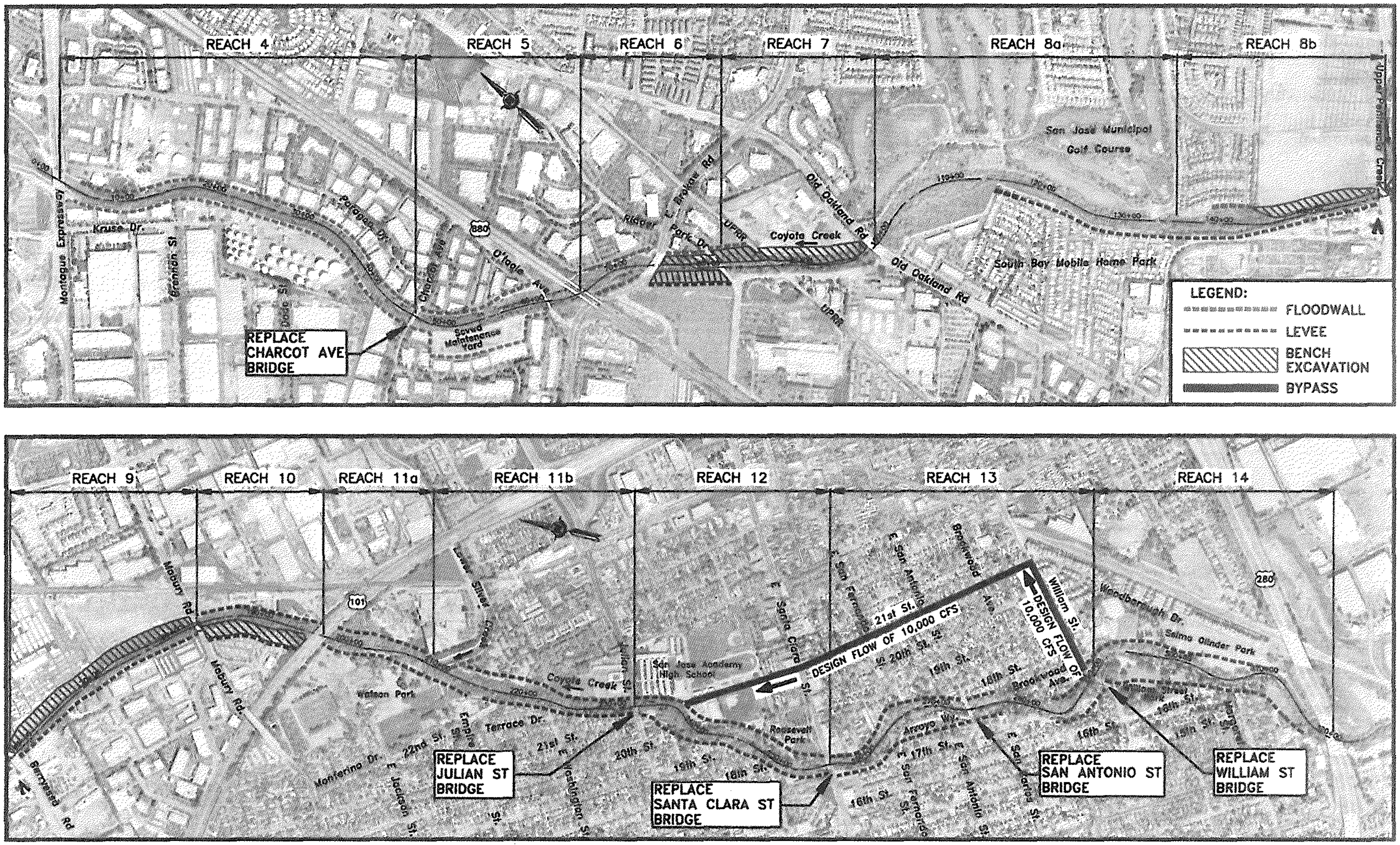
FIG Alt. G



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REFERENCE INFORMATION AND NOTES

1. Aerial photography performed April 2003.

DATE 05/09
DESIGN PR
DRAWN R. AGREDA
CHECKED ZS

Santa Clara Valley Water District

MID-COYOTE CREEK
CONCEPTUAL ALTERNATIVE H

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VERIFY SCALES
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PROJECT NUMBER 25174043
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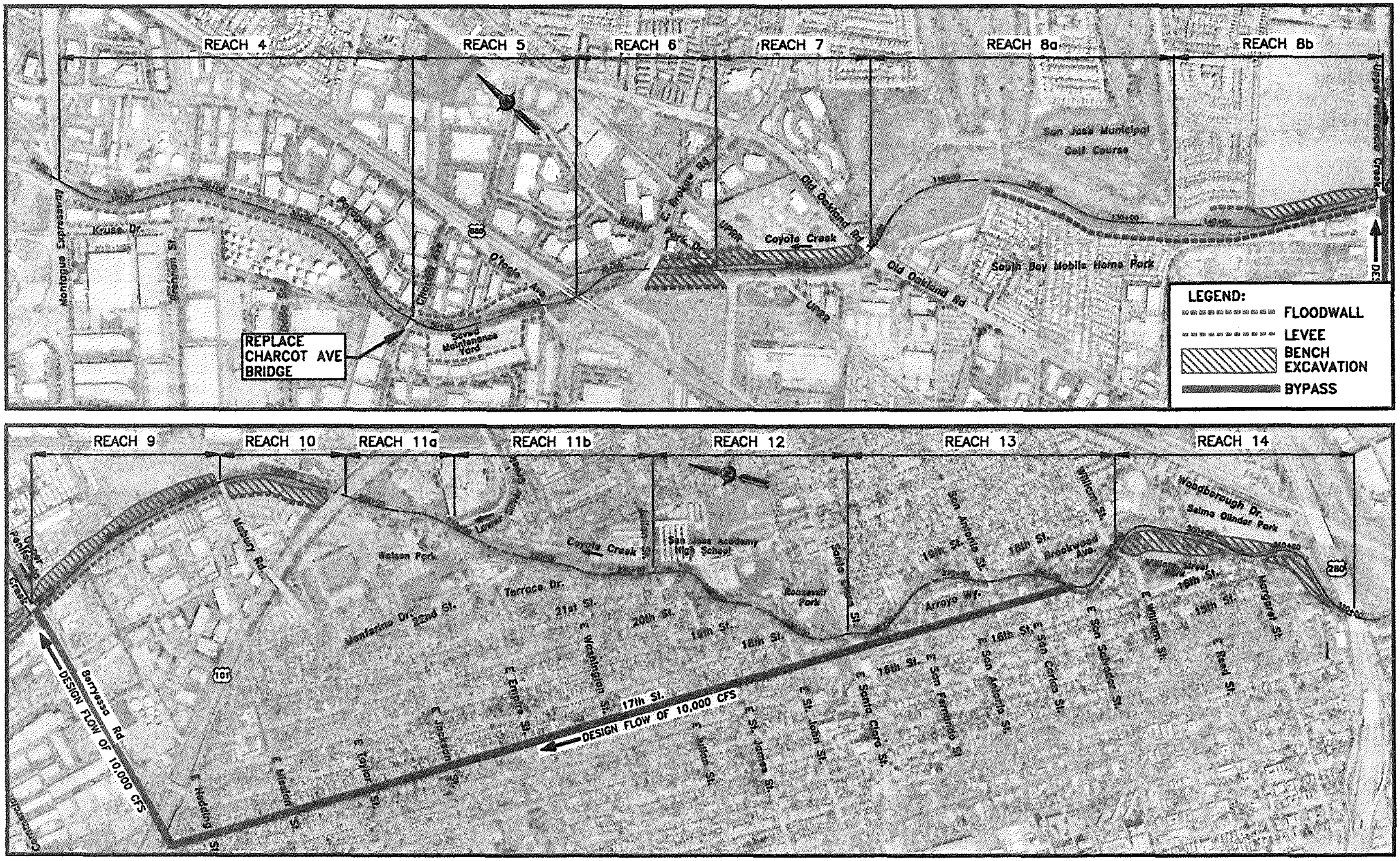

REV	DESCRIPTION	DATE	APPR.

REFERENCE INFORMATION AND NOTES

1. Aerial photography performed April 2003.

DATE 04/09
DESIGN KS/PR
DRAWN R. AGREDA
CHECKED ZS

Santa Clara Valley Water District

MID-COYOTE CREEK
CONCEPTUAL ALTERNATIVE I

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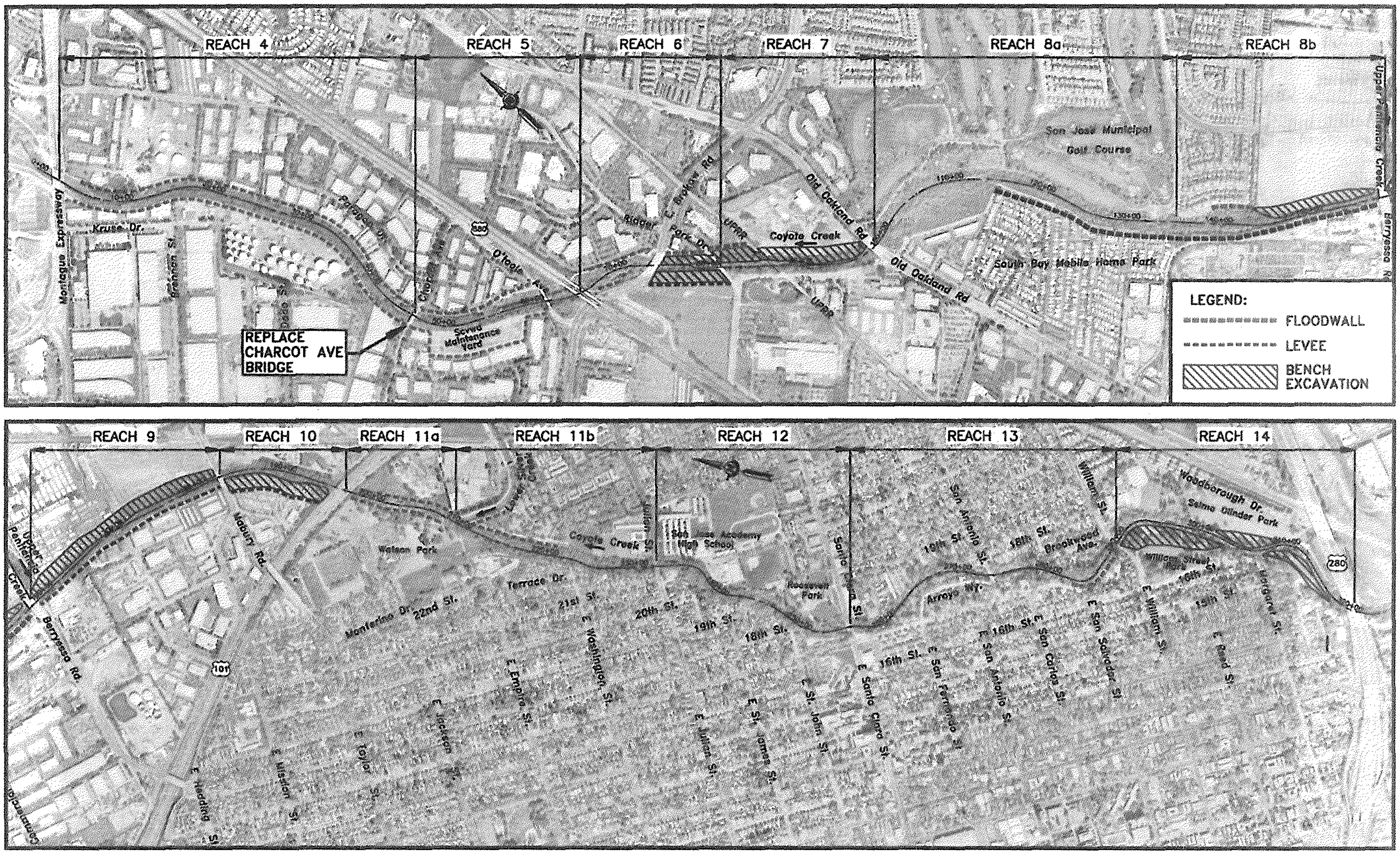
PROJECT NUMBER 28174043

SHEET CODE: FIG Alt. I



REV | DESCRIPTION | DATE | APPR

REFERENCE INFORMATION AND NOTES

1. Aerial photography performed April 2003.

DATE
05/09
DESIGN
PR
DRAWN
R. AGREDA
CHECKED
ZS

Santa Clara Valley Water District

MID-COYOTE CREEK
CONCEPTUAL ALTERNATIVE J

SCALE
NOT TO SCALE
VERIFY SCALES
0 1"
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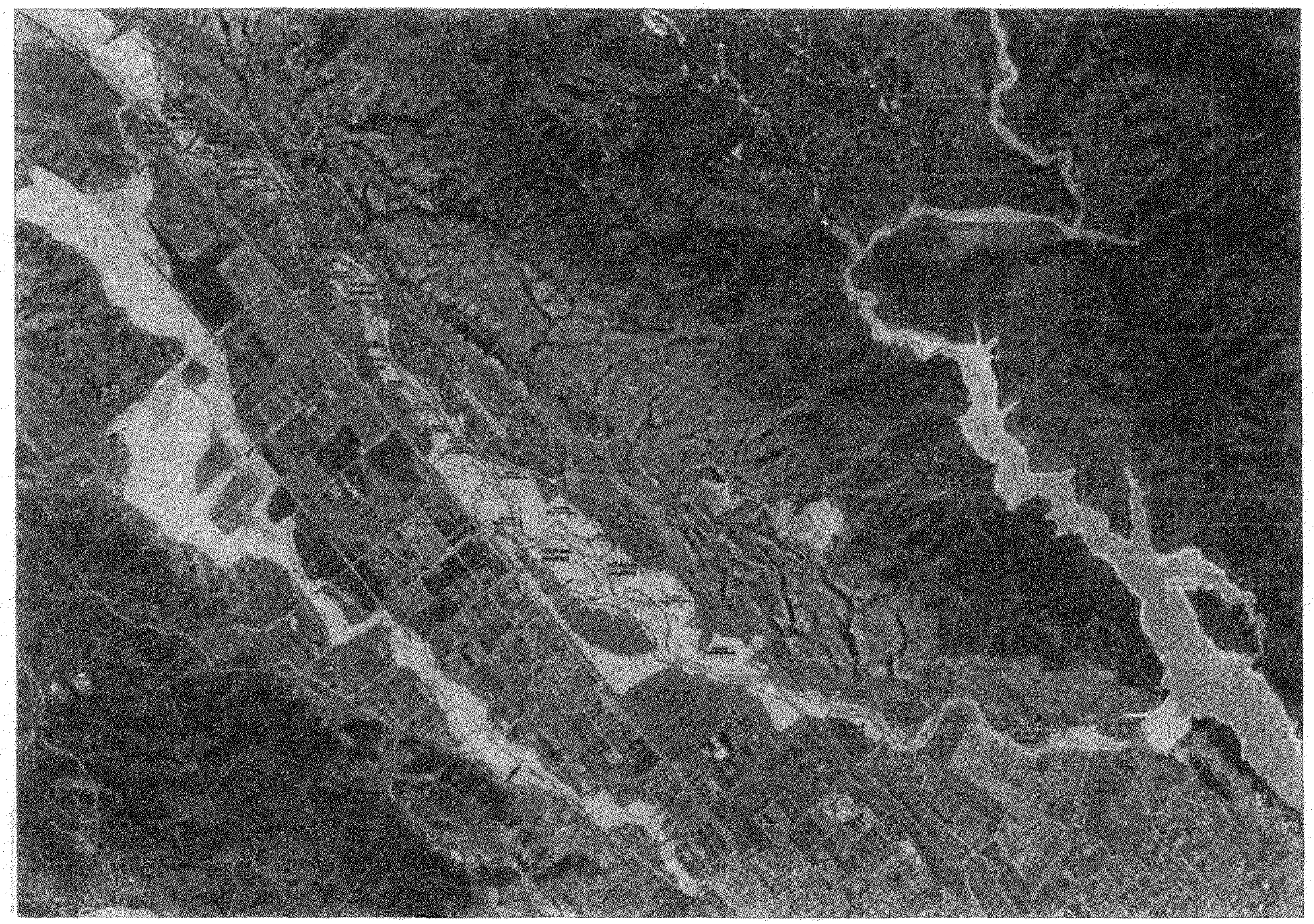
PROJECT NUMBER
26174043
SHEET CODE:
FIG
Alt. J



**COYOTE CREEK
FEASIBILTY STUDY**

Figure: Alternative L

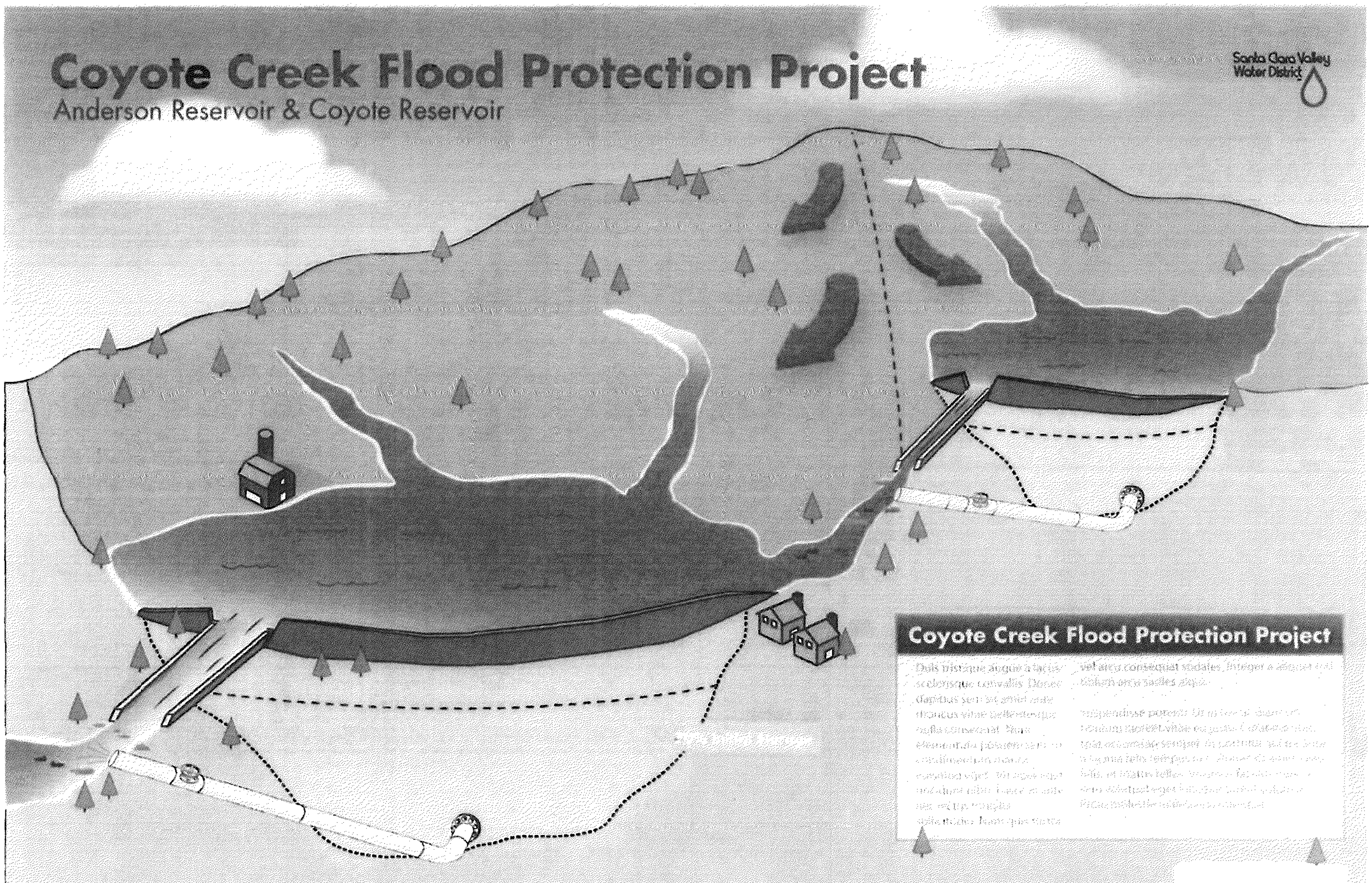

Coyote Creek Flood Protection Project
Anderson Reservoir & Coyote Reservoir
Santa Clara Valley Water District
Coyote Creek Flood Protection Project

Figure: Alternative Q

CHAPTER 3: ALTERNATIVES EVALUATION

3.1 Alternative Screening Methodology

Screening during the conceptual alternatives phase of the project focuses on the project objectives, costs, technical feasibility, and right-of-way availability.

The criteria in screening the conceptual alternatives are as follows:

1. Conceptual alternatives must satisfy the project objectives to be carried forward to the feasible alternatives analysis phase.
2. The conceptual alternative must be supported by the community
3. The project's budget for the Mid-Coyote Creek Project, including planning, design, and partial construction, is $32 million at Year 1999 value. The affordability cut off line for alternatives is set at the project budget.
4. Technical feasibility indicates if the alternative can be implemented using widely available construction materials and know-how. Alternatives that have been determined to be technically feasible could be allowed to continue to the feasible alternative phase.

Any conceptual alternatives that satisfy all of the screening criteria will be carried forward into the feasibility analysis stage of the project.

3.2 Screening Results

Table 3-1 summarized the results of screening analysis. Most of the alternatives would satisfy the project objectives; however, the estimated capital costs would exceed the project budget significantly. Therefore, these alternatives will have to be eliminated from further consideration and will not be carried forward into the feasible analysis.

The capital cost estimates that was performed during the conceptual alternative study have helped in identifying the limit of an affordable project. After a meeting with Coyote Watershed Owner and DOO of Watershed Capital Division, the project team recommended to focus on the reaches from 4 to 8b and perform feasible alternative study based on the results of the conceptual alternative studies. The following alternatives will be studied in more detail in the project feasible alternative phase for Reaches 4 through 8b:

1. Floodwall and Creek Widening

   Creek banks would be raised by constructing a flood wall for Reaches 4 and 5. From Reach 6 to 8b, the creek would be widened within the SCVWD right-of-way and the potential 100' riparian corridor setback. The existing levee located on west bank of Reaches 8a and 8b would be raised as well.

2. Creek Bottom Reprofiling

   In this alternative, improvements within Reaches 4 and 7 would be the same as Alternative 1. Starting at Reach 8a, the creek invert would be reprofiled to 0.3% in slope.

The creek would be widened on east bank in Reach 8b and the west banks in Reaches 8a and 8b would be raised to prevent flooding.

3. Floodwalls/levees with rigorous field maintenance

   Floodwall only would be implemented in this alternative from Reaches 4 to 8b.

4. A less than 100-year Protection

   A 7,000 cfs flood event in the creek (about 10- to 15-year flood event) will be studied and flood protection measures will be identified for the reaches from 4 through 14.

5. Creek Enhancement Option

   This alternative is similar to the Alt. 1, except that the Reaches 4 and 5 in this alternative would be modified by lowering the east side levee as much as 5 feet, and all of non-native plants would be removed from the creek.

Table 3-1: Conceptual Alternative Matrix

PROJECT DESCRIPTION		Alt. A - No Project	Alt. B - Fluvial Geomorphic Alternative	Alt. C - Utilization of 100 ft Setback for Bench	Alt. D - Creek Invert Reprofile to 0.3%, 0.035%	Alt. E - Creek Invert Reprofile to 0.3%, 0.07%	Alt. F - Creek Invert Reprofile to 0.28%, 0.07%
PROJECT OBJECTIVES	**1. Provide 1% Flood Protection to parcels in the Project Area**	Objective is not met. Existing conditions do not provide 1% flood protection	Meets objective by 1- Widening the channel, constructing floodwalls/levees and replacing some bridges to increase the capacity of project reaches to convey the design flow.	Meets objective, see alt B.	Meets objective, see alt B and additionally, this alternative would increase the capacity of project reaches through reshaping the channel invert, channel deepening, in some areas.	Meets objective, see alt D.	Meets objective, see alt D.
	2. Identify Stream Habitat Enhancement and/or Restoration Opportunities	Objective is not met. Possible that existing ecological conditions are in decline.	Meets objective by 1- Widening the creek and removing the dense and invasive vegetations on the creek side 2-Creating flood benches	Meets objective, see alt B.	Meets objective, see alt B.	Meets objective, see alt B.	Meets objective, see alt B.
	3. Identify Opportunities to Improve Water Quality	Objective is not met. Existing conditions have deep pools created by aquifer subsidence	Meets objective by 1- Changing the channel geometry, enlarging the channel 2- Managing vegetations on floodplain benches 3- improving the control of non-point source pollutants, trash and debris that enter the stream by modification of the cities drainage outfalls. 4- Improving access to the creek for trash cleaning	Meets objective, see alt B.	Meets objective, see alt B and additionally, this alternative would greatly improve water quality through reshaping the channel invert, channel deepening, in some areas.	Meets objective, see alt D.	Meets objective, see alt D.
	4. Identify Opportunities to Provide Public Recreation and Access	Objective is not met. Currently public access to the project reach is limited to existing parks.	Meets objective by 1- Widening the channel or flood levees which would include trails/maintenance roads available to the public as pedestrian or cycling trails. 2- CSJ's Master Trail Plan	Meets objective, see alt B.	Meets objective, see alt B.	Meets objective, see alt B.	Meets objective, see alt B.
	5. Minimize the Need for Future Operation and Maintenance Activities and Create a Self-sustaining System	Objective is not met.	Objective is not met by The new facilities would increase the future operation and maintenance 1- Roads/trails, levees, floodwalls and flood benches would require routine maintenance such as herbicide application, trimming and vegetation removal, invasive plant species removal and animal control, levee/bank/channel repairs, removing sediment, and graffiti removal. 2- More trash to clean	Objective is not met, see alt B.	Objective is not met, see alt B.	Objective is not met, see alt B.	Objective is not met, see alt B.
	6. Obtain Community Support		Objective is not met, residents near the creek showed objection.	Objective is not met, see alt B.	Objective is not met, see alt B.	Objective is not met, see alt B.	Objective is not met, see alt B.
	7. Technical Feasibility	Objective is not met.	Meets objective by 1- Obtaining adjacent R/W, required land and appropriate mitigation	Meets objective, see alt B.	Meets objective, see alt B.	Meets objective, see alt B.	Meets objective, see alt B.
	8. Total Project Cost (millions)	$0.00	$540 - 560	$480 - 500	$520 - 530	$590 - 610	$ 580 - 600

Table 3-1: Conceptual Alternative Matrix (Continued)

PROJECT DESCRIPTION		Alt. G - Levees and Floodwalls	Alt. H - By-Pass, Double Box Culvert, beneath William and 21st Street	Alt I - By-Pass, Double Box Culvert, beneath 17th Street and Mission Road	Alt J - Anderson Reservoir Operation Modification (reservoir 64% full prior to storm)	Alt K - Anderson Reservoir Operation Modification (reservoir 64% full at all times)	Alt L - Detention Ponds, Offstream Storage
PROJECT OBJECTIVES	**1. Provide 1% Flood Protection to parcels in the Project Area**	Meets objective by 1- Constructing floodwalls/levees and replacing some bridges to increase the capacity of project reaches to convey the design flow.	Meets objective by 1- Widening the channel, constructing floodwalls/levees, and replacing some bridges to increase the capacity of project reaches to convey the design flow. 2- Diverting partial flow through an underground bypass culvert to reduce the flow in the creek between Lower Silver Creek and I-280	Meets objective by 1- Widening the channel, constructing floodwalls/levees, and replacing some bridges to increase the capacity of project reaches to convey the design flow. 2- Diverting partial flow through an underground bypass culvert to reduce flow in the creek between Lower Silver Creek and I-280	Meets objective by 1- Widening the channel, constructing floodwalls/levees and replacing some bridges to increase the capacity of project reaches to convey the design flow 2- Lowering Anderson Reservoir initial storage volume prior to major storms to reduce flow in the creek between Lower Silver Creek and I-280	Meets objective by 1- Widening the channel, constructing floodwalls/levees and replacing some bridges to increase the capacity of project reaches to convey the design flow 2- Lowering Anderson Reservoir initial storage that the reservoir would be operating at 64% of its capacity during entire winter to reduce flow in the creek between Lower Silver Creek and I-280.	The validity of this alternative depends on the land availability and depth of the ground water table in the potential detention pond area between Anderson Reservoir and Fisher Creek. If objective is met, see alt M and N
	2. Identify Stream Habitat Enhancement and/or Restoration Opportunities	Objective is not met by 1- Not changing the existing channel condition, there would be no stream habitat enhansment and no restoration opportunities.	Objective is not met by 1- Not changing the existing channel condition, there would be no stream habitat enhansment and no restoration opportunities	Meets objective, see alt B for downstream reaches. At upstream, since the creek would remain unchanged, the objective would not be met.	Meets objective, see alt I.	Meets objective, see alt I.	Meets objective, see alt I.
	3. Identify Opportunities to Improve Water Quality	Objective is not met by 1- Not changing the existing environmental setting, water quality would not be improved.	Objective is not met by 1- Not changing the existing environmental setting, water quality would not be improved.	Meets objective, see alt B for downstream reaches. At upstream, since the creek would remain unchanged, the objective would not be met.	Meets objective, see alt I.	Meets objective, see alt I.	Meets objective, see alt I.
	4. Identify Opportunities to Provide Public Recreation and Access	Objective is not met by 1- Not changing the existing environmental setting 2- Not changing the existing channel condition Currently public access to the project reach is limited to the existing parks. Access road could be provided with land acquisition.	Objective is not met by 1- Not changing the existing environmental setting 2- Not changing the existing channel condition Currently public access to the project reach is limited to the existing parks.	Meets objective, see alt B.	Meets objective, see alt I.	Meets objective see alt I.	Meets objective see alt I.
	5. Minimize the Need for Future Operation and Maintenance Activities and Create a Self-sustaining System	Objective is not met, see alt B.	Objective is not met, see alt B.	Objective is not met by See alt B and additionally, operation and maintenance of an underground bypass would be minimal. Although the bypass would be designed with adequate slope to move debris and sediment control, the inlet would require regular cleaning to remove leaves and other debris during the flow season.	Meets objective, see alt B.	Meets objective, see alt B.	Meets objective, see alt B and additionally, operation and maintenance for detention pond is mainly regular maintenance of its inlet/outlet work. The detention pond itself would need minimal maintenance, as vegetation and sediment can be allowed unchecked.

	6. Obtain Community Support	Objective is not met see alt B.	Objective is not met, see alt B.	Not sure about the community support for this alternative !	Meets objective, residents showed strong interest in this alternative	Meets objective, see alt J.	Meets objective, see alt J.
	7. Technical Feasibility	Meets objective, see alt B.	Meets objective, see alt B.	Meets objective, see alt B.	Meets objective, see alt B.	Meets objective, see alt B. And if water loss is obtainble	Objective is not met, by 1- Not having enough open space for the required detention volume.
	8. Total Project Cost (millions)	$440 - 470	$570 - 590	$380 - 390	$400 -490	$230 - 280 (cost of water loss is not included)	$930 -1,270

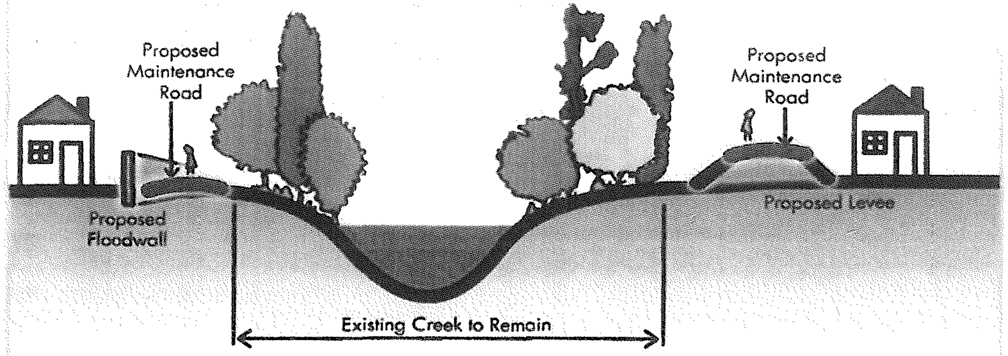
Table 3-1: Conceptual Alternative Matrix (Continued)

Project Description		Alt M - Anderson Reservoir Operation Modification (80% full prior to storm) & Detention Ponds	Alt N - Anderson Reservoir Operation Modification (75% full prior to storm) & Detention Ponds	Alt O - Detention Ponds & a By-pass, Single Box Culvert, beneath William and 17th Street	Alt P - Anderson Reservoir Operation Modification (74% full prior to storm) & a By-pass, Single Box Culvert, beneath 17th and William Street	Alt Q - Coyote Reservoir & Anderson Reservoir Operation Modification
Project Objectives						
1	**Provide 1% Flood Protection to parcels in the Project Area**	Meets objective by 1- Widening the channel, constructing floodwalls/levees and replacing some bridges up to Lower Silver Creek to increase the capacity of project reaches to convey the design flow 2- Lowering Anderson Reservoir initial storage volume prior to major storms 3- Diverting partial flow through detention ponds (between reservoir and Lower Silver Creek) to reduce flow in the creek between Lower Silver Creek and I-280	Meets objective, see alt M	Meets objective by 1- Widening the channel, constructing floodwalls/levees and replacing some bridges up to Lower Silver Creek to increase the capacity of project reaches to convey the design flow 2- Diverting partial flow through an underground bypass culvert 3- Diverting partial flow through detention ponds to reduce flow in the creek between Lower Silver Creek and I-280	Meets objective by 1- Widening the channel, constructing floodwalls/levees and replacing some bridges up to Lower Silver Creek to increase the capacity of project reaches to convey the design flow 2- Lowering Anderson Reservoir initial storage volume prior to major storms 3- Constructing an underground bypass culvert to route excess flow around the problem area to reduce the flow in the creek between Lower Silver Creek and I-280	Meets objective by 1- Widening the channel, constructing floodwalls/levees and replacing some bridges up to Lower Silver Creek to increase the capacity of project reaches to convey the design flow 2- Lowering Anderson Reservoir initial storage volume that the reservoir would be operating at 80% of its capacity during entire winter to reduce flow in the creek prior to major storms 3- Lowering Coyote Reservoir from 70% full to 10% full prior to major storms to reduce the flow in the creek between Lower Silver Creek and I-280
2	**Identify Stream Habitat Enhancement and/or Restoration Opportunities**	Meets objective, see alt I.	Meets objective, see alt I.	Meets objective, see alt I.	Meets objective, see alt I.	Meets objective, see alt I.
3	**Identify Opportunities to Improve Water Quality**	Meets objective, see alt I.	Meets objective, see alt I.	Meets objective, see alt I.	Meets objective, see alt I.	Meets objective, see alt I.
4	**Identify Opportunities to Provide Public Recreation and Access**	Meets objective see alt I.	Meets objective see alt I.	Meets objective see alt I.	Meets objective see alt I.	Meets objective, see alt I.
5	**Minimize the Need for Future Operation and Maintenance Activities and Create a Self-sustaining System**	Meets objective, see alt L.	Meets objective, see alt L.	Meets objective, see alt L.	Meets objective see alt I.	Meets objective, see alt B.
6	**Obtain Community Support**	Meets objective, see alt J.	Meets objective, see alt J.	Meets objective, see alt J.	Meets objective, see alt J.	Meets objective, see alt J.
7	**Technical Feasibility**	Meets objective, see alt B.	Meets objective, see alt B.	Meets objective, see alt B.	Meets objective, see alt B.	Meets objective, see alt B.
8	**Total Project Cost (millions)**	$850 - 1,050	$700 - 840	$810 - 1,050	$520 - 600	$460 -610

Attachment A

Conceptual Project Scenarios

① Floodwalls/Levees



FLOODWALLS/LEVEES
Typical Cross Section

Benefits:
- Provides flood protection for homes and public facilities near the creek.
- Preserves the natural habitat along the creek.

Impacts:
- Floodwalls may be viewed as an intrusion by some homeowners along the creek.
- Levees need more right-of-way than floodwalls due to their bigger footprint.
- Use of floodwalls and/or levees can cause higher water levels upstream.

F 1/16/08 mc

Floodwalls and levees are common tools used to provide flood protection by increasing creek capacity. They are often used where creek waters can get higher than the banks.

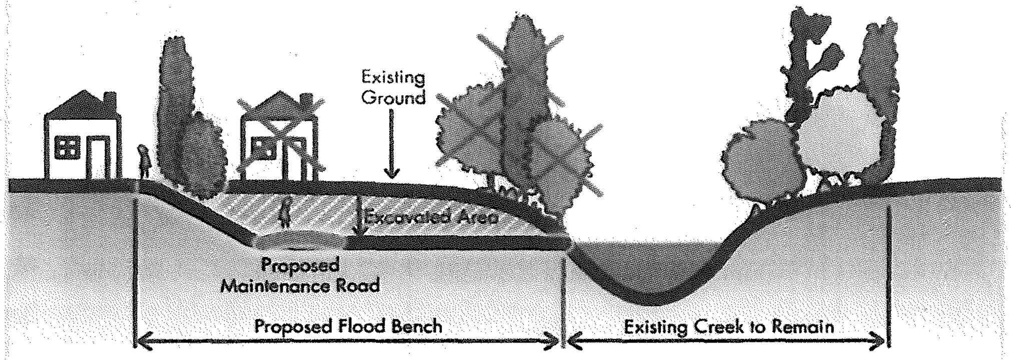
Where limited right-of-way is available along a creek, floodwalls can be a good solution to address flooding since they require the least amount of land to construct. Floodwalls consist of reinforced concrete which can be colored or textured to blend into the surroundings. Levees are earthen embankments which function just like floodwalls but are made of compacted dirt and have a bigger footprint, requiring more land to construct. The top of a levee often doubles as a maintenance road or path.

Floodwalls and levees are often used together or in combination with other flood protection measures, depending on the specific geometry of a creek and its hydraulics.

The graphic above illustrates a floodwall on the left side of the creek and an earthen levee on the right. Maintenance roads are also shown on both creek banks.

Santa Clara Valley Water District

② Flood Bench



FLOOD BENCH
Typical Cross Section

Benefits:
- Provides flood protection for homes and public facilities near the creek.
- Preserves one bank of the natural creek.
- Provides a connected flood plain that will reduce creek erosion and improve water quality.
- Includes maintenance roads that can also be used by pedestrians and cyclists to provide public access to the creek.

Impacts:
- Includes the removal of natural vegetation on one creek bank to create a flood bench.
- Construction costs can be significantly higher due to the need to acquire land.

F 1/16/08 mc

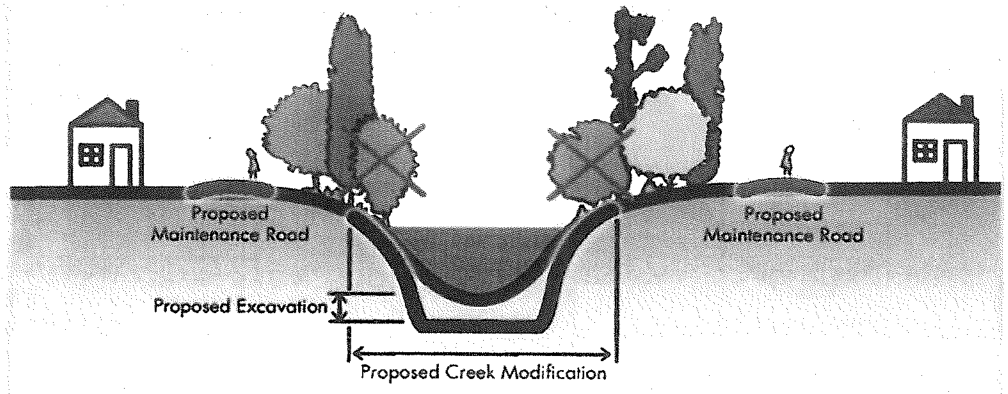
A flood bench is a common tool used to provide flood protection by increasing creek capacity. A flood bench is created by excavating the ground along one side of a creek bank making the overall creek larger. Sometimes flood benches are excavated on both banks. When compared to other flood protection tools, such as floodwalls or levees, flood benches require the most land to widen the creek. Flood benches lower the water surface upstream which can mean fewer modifications to bridges and lower floodwalls or levees.

Flood benches are often used in combination with other flood protection measures, depending on the specific geometry of a creek and its hydraulics.

The graphic above illustrates an excavated flood bench on the left.

Santa Clara Valley
Water District

③ Creek Bottom Profile Modification


Proposed Maintenance Road
Proposed Maintenance Road
Proposed Excavation
Proposed Creek Modification

CREEK BOTTOM PROFILE MODIFICATION
Typical Cross Section

Benefits:

- Provides increased water movement and improved natural habitat.
- Provides increased creek capacity to help reduce local flooding.

Impacts:

- Excavation within the creek will have significant impacts to natural vegetation and habitat.
- The increased creek slope would result in increased creek flow velocities that might initiate creek bed and bank erosion.

Creek bottom profile modification is a tool used to provide flood protection by increasing the steepness of the creek bottom to allow the water to flow faster, thereby increasing the effective capacity of the creek. In the case of Coyote Creek, because of local land subsidence (sinking of the land surface as a result of excessive groundwater pumping in the 1940s and 1950s), the creek bottom profile is very flat. Between Highway 101 and Interstate 280 the creek consists mostly of long and deep pools. This flatness contributes to poor water movement and concentrates pollutants in the creek. This tool includes excavating the creek bottom to increase the overall profile and as a result improve water movement, water quality, and natural habitats.

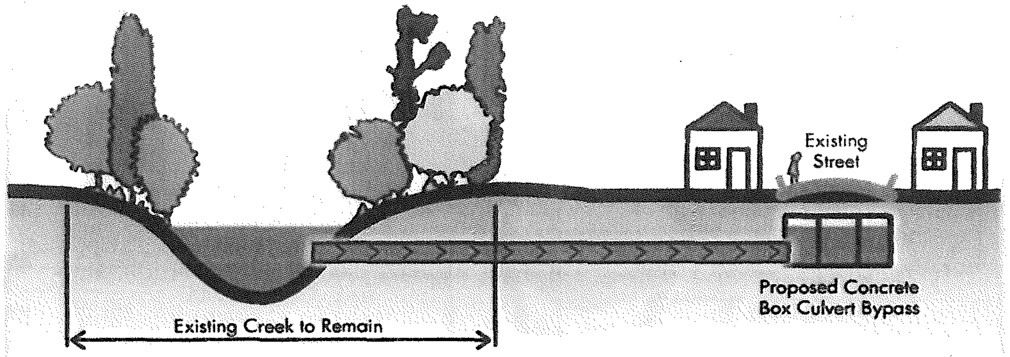
Creek bottom modification is often used in combination with other flood protection measures depending on the specific geometry of a creek and its hydraulics.

The graphic above illustrates increasing the depth of the creek profile by excavating the bottom.

Santa Clara Valley
Water District

F 1/16/08 mc

④ Bypass Channel



BYPASS CHANNEL
Typical Cross Section

Benefits:
- Provides flood protection for homes and public facilities near the creek.
- Preserves existing natural habitat along the creek.

Impacts:
- Construction of an underground bypass channel will have major impacts to traffic patterns on city streets in the vicinity of the project.
- Construction costs associated with a bypass would be significant.
- The inlet to the bypass could be a risk to public safety during high flows.

Bypass channels are a tool to provide flood protection by routing excess flows away from a creek to avoid flooding. This tool utilizes a reinforced concrete underground bypass channel to provide the additional creek capacity to carry excess flows downstream into a section of creek with adequate capacity. Bypasses are sometimes constructed under public streets.

Bypasses are typically very expensive to build and disruptive to local traffic during construction.

Bypass channels are used in combination with other flood protection measures depending on the specific geometry of a creek and its hydraulics.

Santa Clara Valley Water District

F 1/16/08 mc

Attachment B

Conceptual Alternative Cost Estimates

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (One Percent Flood Protection)

Revised: 3/14/08

Reaches 4-14 (Montague Expressway to Hwy 280)

Alternative B - Widened Channel with Floodwall and Levee

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	147.2	$7,360,280
Vegetation demolition	$10,000	ACRE	70.7	$707,385
Building demolition	$10,000	ACRE	20.1	$201,389
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	0.0	$0
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	1,322,698.1	$26,453,962
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	7,316.0	$7,316,018
Levee Construction				
Levee	$50	C.Y.	147,953.7	$7,397,685
Bridges and Culverts				
Bridge Removal	$100,000	EA.	4.0	$400,000
District Cost To Replace Santa Clara St. Bridge	$3,000,000	EA.	4.0	$12,000,000
Traffic Control	$100,000	EA.	4.0	$400,000
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	3,665.0	$366,500
Sanitary Sewer Line Relocation	$200	L.F.	626.0	$125,200
Water Main	$100	L.F.	1,180.0	$118,000
Outfalls (12in. - 54in.)	$5,000	EA.	30.0	$150,000
Outfalls (60in. - 78in.)	$10,000	EA.	3.0	$30,000
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$63,026,420
Construction Contingencies (25%)				$15,756,605
TOTAL CONSTRUCTION				**$78,783,024**
Design (15%)				**$11,817,454**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (One Percent Flood Protection)

Reaches 4-14 (Montague Expressway to Hwy 280)

Alternative B - Widened Channel with Floodwall and Levee

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$3,939,151**
Inspection (15%)				**$11,817,454**
				$106,357,083
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	78.0	$156,000,000
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.9	$4,694
Commercial (partial)	$1,000,000	ACRE	60.6	$60,626,615
Commercial (creek)	$5,000	ACRE	10.6	$52,770
Commercial (relocate on site)	$500,000	EA.	14.0	$7,000,000
Public (partial)	$1,000,000	ACRE	23.3	$23,327,890
Public (creek)	$5,000	ACRE	2.0	$9,831
Public (relocate on site)		EA.	0.0	$0
Manufactured homes	$600,000	E.A.	36.0	$21,600,000
RIGHT-OF-WAY COSTS			225.4	**$268,621,799**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	70.7	$14,147,705
Revegetation (off-site)	$200,000	ACRE	141.5	$28,295,409
Property acquisition for off-site revegetation	$1,000,000	ACRE	141.5	$141,477,045
MITIGATION COSTS			354	**$183,920,159**
TOTAL COSTS				**$558,899,041**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,100 cfs Flood Protection)

Revised: 3/14/08

Reaches 4&5 (Montague Expressway to Interstate 880)

Alternative B - Widened Channel with Floodwall and Levee

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	34.8	$1,742,456
Vegetation demolition	$10,000	ACRE	13.4	$133,863
Building demolition	$10,000	ACRE	6.2	$62,302
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	0.0	$0
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	275,451.1	$5,509,022
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	6,027.6	$6,027,569
Levee Construction				
Levee	$50	C.Y.	0.0	$0
Bridges and Culverts				
Bridge Removal	$100,000	EA.	1.0	$100,000
District Cost To Replace Charcot Ave. Bridge	$3,000,000	EA.	1.0	$3,000,000
Traffic Control	$100,000	EA.	1.0	$100,000
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	3,665.0	$366,500
Sanitary Sewer Line Relocation	$200	L.F.	0.0	$0
Water Main	$100	L.F.	480.0	$48,000
Outfalls (12in. - 54in.)	$5,000	EA.	5.0	$25,000
Outfalls (60in. - 78in.)	$10,000	EA.	1.0	$10,000
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$17,124,712
Construction Contingencies (25%)				$4,281,178
TOTAL CONSTRUCTION				**$21,405,890**
Design (15%)				**$3,210,883**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,100 cfs Flood Protection)

Reaches 4&5 (Montague Expressway to Interstate 880)

Alternative B - Widened Channel with Floodwall and Levee

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$1,070,294**
Inspection (15%)				**$3,210,883**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	0.0	$0
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	15.0	$14,994,787
Commercial (creek)	$5,000	ACRE	0.0	$0
Commercial (relocate on site)	$500,000	EA.	9.0	$4,500,000
Public (partial)	$1,000,000	ACRE	0.0	$0
Public (creek)	$5,000	ACRE	0.0	$0
Public (relocate on site)		EA.	0.0	$0
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$19,494,787**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	13.4	$2,677,251
Revegetation (off-site)	$200,000	ACRE	26.8	$5,354,503
Revegetation right-of-way (off-site)	$1,000,000	ACRE	26.8	$26,772,513
MITIGATION COSTS				**$34,804,266**
TOTAL COSTS				**$83,197,005**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,100 cfs Flood Protection)

Revised: 3/14/08

Reaches 6&7 (Interstate 880 to Old Oakland Road)

Alternative B - Widened Channel with Floodwall and Levee

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	11.5	$577,080
Vegetation demolition	$10,000	ACRE	7.5	$74,619
Building demolition	$10,000	ACRE	0.0	$0
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	0.0	$0
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	92,360.6	$1,847,211
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	228.8	$228,791
Levee Construction				
Levee	$50	C.Y.	0.0	$0
Bridges and Culverts				
Bridge Removal	$100,000	EA.	2.0	$200,000
District Cost To Replace _ Bridge	$3,000,000	EA.	2.0	$6,000,000
Traffic Control	$100,000	EA.	2.0	$200,000
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	626.0	$125,200
Water Main	$100	L.F.	0.0	$0
Outfalls (12in. - 54in.)	$5,000	EA.	3.0	$15,000
Outfalls (60in. - 78in.)	$10,000	EA.	1.0	$10,000
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$9,277,901
Construction Contingencies (25%)				$2,319,475
TOTAL CONSTRUCTION				**$11,597,377**
Design (15%)				**$1,739,607**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,100 cfs Flood Protection)

Reaches 6&7 (Interstate 880 to Old Oakland Road)

Alternative B - Widened Channel with Floodwall and Levee

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$579,869**
Inspection (15%)				**$1,739,607**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	0.0	$0
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	1.3	$1,345,403
Commercial (creek)	$5,000	ACRE	0.0	$0
Commercial (relocate on site)	$500,000	EA.	0.0	$0
Public (partial)	$1,000,000	ACRE	0.8	$756,938
Public (creek)	$5,000	ACRE	0.0	$0
Public (relocate on site)		EA.	0.0	$0
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$2,102,341**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	7.5	$1,492,386
Revegetation (off-site)	$200,000	ACRE	14.9	$2,984,772
Revegetation right-of-way (off-site)	$1,000,000	ACRE	14.9	$14,923,862
MITIGATION COSTS				**$19,401,020**
TOTAL COSTS				**$37,159,821**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,100 cfs Flood Protection)

Revised: 3/14/08

Reach 8a (Old Oakland Road to Upstream Limit of Golf Course)

Alternative B - Widened Channel with Floodwall and Levee

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	8.2	$411,954
Vegetation demolition	$10,000	ACRE	4.1	$40,572
Building demolition	$10,000	ACRE	1.8	$18,170
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	0.0	$0
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	62,162.4	$1,243,248
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	0.0	$0
Levee Construction				
Levee	$50	C.Y.	25,648.4	$1,282,422
Bridges and Culverts				
Bridge Removal	$100,000	EA.	0.0	$0
District Cost To Replace _ Bridge	$3,000,000	EA.	0.0	$0
Traffic Control	$100,000	EA.	0.0	$0
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	0.0	$0
Water Main	$100	L.F.	0.0	$0
Outfalls (12in. - 54in.)	$5,000	EA.	5.0	$25,000
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$3,021,366
Construction Contingencies (25%)				$755,341
TOTAL CONSTRUCTION				**$3,776,707**
Design (15%)				**$566,506**

Revised: 3/14/08

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,100 cfs Flood Protection)

Reach 8a (Old Oakland Road to Upstream Limit of Golf Course)

Alternative B - Widened Channel with Floodwall and Levee

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$188,835**
Inspection (15%)				**$566,506**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	0.0	$0
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	0.0	$0
Commercial (creek)	$5,000	ACRE	0.0	$0
Commercial (relocate on site)	$500,000	EA.	0.0	$0
Public (partial)	$1,000,000	ACRE	1.3	$1,303,653
Public (creek)	$5,000	ACRE	2.0	$9,831
Public (relocate on site)		EA.	0.0	$0
Manufactured homes	$600,000	E.A.	36.0	$21,600,000
RIGHT-OF-WAY COSTS				**$22,913,484**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	4.1	$811,430
Revegetation (off-site)	$200,000	ACRE	8.1	$1,622,861
Revegetation right-of-way (off-site)	$1,000,000	ACRE	8.1	$8,114,303
MITIGATION COSTS				**$10,548,593**
TOTAL COSTS				**$38,560,632**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,100 cfs Flood Protection)

Revised: 3/14/08

Reach 8b (Upstream Limit of Golf Course to Berryessa Road)

Alternative B - Widened Channel with Floodwall and Levee

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	11.5	$575,853
Vegetation demolition	$10,000	ACRE	4.1	$40,610
Building demolition	$10,000	ACRE	0.8	$7,862
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	0.0	$0
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	41,663.2	$833,264
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	0.0	$0
Levee Construction				
Levee	$50	C.Y.	18,472.7	$923,637
Bridges and Culverts				
Bridge Removal	$100,000	EA.	0.0	$0
District Cost To Replace _ Bridge	$3,000,000	EA.	0.0	$0
Traffic Control	$100,000	EA.	0.0	$0
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	0.0	$0
Water Main	$100	L.F.	0.0	$0
Outfalls (12in. - 54in.)	$5,000	EA.	2.0	$10,000
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$2,391,227
Construction Contingencies (25%)				$597,807
TOTAL CONSTRUCTION				**$2,989,033**
Design (15%)				**$448,355**

Revised: 3/14/08

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,100 cfs Flood Protection)

Reach 8b (Upstream Limit of Golf Course to Berryessa Road)

Alternative B - Widened Channel with Floodwall and Levee

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$149,452**
Inspection (15%)				**$448,355**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	0.0	$0
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	12.7	$12,724,177
Commercial (creek)	$5,000	ACRE	3.3	$16,319
Commercial (relocate on site)	$500,000	EA.	0.0	$0
Public (partial)	$1,000,000	ACRE	0.0	$0
Public (creek)	$5,000	ACRE	0.0	$0
Public (relocate on site)		EA.	0.0	$0
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$12,740,496**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	4.1	$812,198
Revegetation (off-site)	$200,000	ACRE	8.1	$1,624,395
Revegetation right-of-way (off-site)	$1,000,000	ACRE	8.1	$8,121,975
MITIGATION COSTS				**$10,558,568**
TOTAL COSTS				**$27,334,258**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Revised: 3/14/08

Reach 9 (Berryessa Road to Mabury Road)

Alternative B - Widened Channel with Floodwall and Levee

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	19.7	$984,209
Vegetation demolition	$10,000	ACRE	6.7	$66,622
Building demolition	$10,000	ACRE	3.2	$32,291
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	0.0	$0
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	126,859.5	$2,537,190
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	0.0	$0
Levee Construction				
Levee	$50	C.Y.	13,480.7	$674,035
Bridges and Culverts				
Bridge Removal	$100,000	EA.	0.0	$0
District Cost To Replace _ Bridge	$3,000,000	EA.	0.0	$0
Traffic Control	$100,000	EA.	0.0	$0
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	0.0	$0
Water Main	$100	L.F.	200.0	$20,000
Outfalls (12in. - 54in.)	$5,000	EA.	3.0	$15,000
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$4,329,348
Construction Contingencies (25%)				$1,082,337
TOTAL CONSTRUCTION				**$5,411,684**
Design (15%)				**$811,753**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Reach 9 (Berryessa Road to Mabury Road)

Alternative B - Widened Channel with Floodwall and Levee

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$270,584**
Inspection (15%)				**$811,753**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	0.0	$0
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	13.2	$13,236,675
Commercial (creek)	$5,000	ACRE	1.0	$4,940
Commercial (relocate on site)	$500,000	EA.	1.0	$500,000
Public (partial)	$1,000,000	ACRE	0.0	$0
Public (creek)	$5,000	ACRE	0.0	$0
Public (relocate on site)		EA.	0.0	$0
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$13,741,615**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	6.7	$1,332,441
Revegetation (off-site)	$200,000	ACRE	13.3	$2,664,882
Revegetation right-of-way (off-site)	$1,000,000	ACRE	13.3	$13,324,408
MITIGATION COSTS				**$17,321,730**
TOTAL COSTS				**$38,369,119**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Revised: 3/14/08

Reach 10 (Mabury Road to Hwy 101)

Alternative B - Widened Channel with Floodwall and Levee

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	11.7	$586,348
Vegetation demolition	$10,000	ACRE	4.6	$46,045
Building demolition	$10,000	ACRE	0.9	$8,553
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	0.0	$0
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	87,672.0	$1,753,440
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	0.0	$0
Levee Construction				
Levee	$50	C.Y.	16,258.1	$812,904
Bridges and Culverts				
Bridge Removal	$100,000	EA.	0.0	$0
District Cost To Replace _ Bridge	$3,000,000	EA.	0.0	$0
Traffic Control	$100,000	EA.	0.0	$0
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	0.0	$0
Water Main	$100	L.F.	0.0	$0
Outfalls (12in. - 54in.)	$5,000	EA.	3.0	$15,000
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$3,222,290
Construction Contingencies (25%)				$805,573
TOTAL CONSTRUCTION				**$4,027,863**
Design (15%)				**$604,179**

Revised: 3/14/08

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Reach 10 (Mabury Road to Hwy 101)

Alternative B - Widened Channel with Floodwall and Levee

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$201,393**
Inspection (15%)				**$604,179**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	0.0	$0
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	7.9	$7,934,460
Commercial (creek)	$5,000	ACRE	5.0	$24,958
Commercial (relocate on site)	$500,000	EA.	4.0	$2,000,000
Public (partial)	$1,000,000	ACRE	0.0	$0
Public (creek)	$5,000	ACRE	0.0	$0
Public (relocate on site)		EA.	0.0	$0
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$9,959,417**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	4.6	$920,910
Revegetation (off-site)	$200,000	ACRE	9.2	$1,841,820
Revegetation right-of-way (off-site)	$1,000,000	ACRE	9.2	$9,209,099
MITIGATION COSTS				**$11,971,829**
TOTAL COSTS				**$27,368,861**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Revised: 3/14/08

Reach 11a (Hwy 101 to Lower Silver Creek)

Alternative B - Widened Channel with Floodwall and Levee

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	10.8	$541,425
Vegetation demolition	$10,000	ACRE	8.4	$84,352
Building demolition	$10,000	ACRE	0.0	$0
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	0.0	$0
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	65,100.2	$1,302,004
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	244.9	$244,873
Levee Construction				
Levee	$50	C.Y.	23,256.2	$1,162,810
Bridges and Culverts				
Bridge Removal	$100,000	EA.	0.0	$0
District Cost To Replace _ Bridge	$3,000,000	EA.	0.0	$0
Traffic Control	$100,000	EA.	0.0	$0
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	0.0	$0
Water Main	$100	L.F.	0.0	$0
Outfalls (12in. - 54in.)	$5,000	EA.	1.0	$5,000
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$3,340,464
Construction Contingencies (25%)				$835,116
TOTAL CONSTRUCTION				**$4,175,580**
Design (15%)				**$626,337**

Revised: 3/14/08

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Reach 11a (Hwy 101 to Lower Silver Creek)

Alternative B - Widened Channel with Floodwall and Levee

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$208,779**
Inspection (15%)				**$626,337**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	0.0	$0
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	10.4	$10,391,112
Commercial (creek)	$5,000	ACRE	1.3	$6,554
Commercial (relocate on site)	$500,000	EA.	0.0	$0
Public (partial)	$1,000,000	ACRE	0.0	$0
Public (creek)	$5,000	ACRE	0.0	$0
Public (relocate on site)		EA.	0.0	$0
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$10,397,666**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	8.4	$1,687,038
Revegetation (off-site)	$200,000	ACRE	16.9	$3,374,076
Revegetation right-of-way (off-site)	$1,000,000	ACRE	16.9	$16,870,380
MITIGATION COSTS				**$21,931,495**
TOTAL COSTS				**$37,966,193**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Revised: 3/14/08

Reach 11b (Lower Silver Creek to Julian Street)

Alternative B - Widened Channel with Floodwall and Levee

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	7.6	$377,879
Vegetation demolition	$10,000	ACRE	4.9	$49,106
Building demolition	$10,000	ACRE	0.2	$2,008
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	0.0	$0
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	92,031.3	$1,840,625
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	0.0	$0
Levee Construction				
Levee	$50	C.Y.	3,898.6	$194,928
Bridges and Culverts				
Bridge Removal	$100,000	EA.	0.0	$0
District Cost To Replace Julian St. Bridge	$3,000,000	EA.	0.0	$0
Traffic Control	$100,000	EA.	0.0	$0
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	0.0	$0
Water Main	$100	L.F.	0.0	$0
Outfalls (12in. - 54in.)	$5,000	EA.	4.0	$20,000
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$2,484,546
Construction Contingencies (25%)				$621,137
TOTAL CONSTRUCTION				**$3,105,683**
Design (15%)				**$465,852**

Revised: 3/14/08

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Reach 11b (Lower Silver Creek to Julian Street)

Alternative B - Widened Channel with Floodwall and Levee

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$155,284**
Inspection (15%)				**$465,852**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	1.0	$2,000,000
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.9	$4,694
Commercial (partial)	$1,000,000	ACRE	0.0	$0
Commercial (creek)	$5,000	ACRE	0.0	$0
Commercial (relocate on site)	$500,000	EA.	0.0	$0
Public (partial)	$1,000,000	ACRE	1.5	$1,479,702
Public (creek)	$5,000	ACRE	0.0	$0
Public (relocate on site)		EA.	0.0	$0
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$3,484,396**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	4.9	$982,122
Revegetation (off-site)	$200,000	ACRE	9.8	$1,964,245
Revegetation right-of-way (off-site)	$1,000,000	ACRE	9.8	$9,821,223
MITIGATION COSTS				**$12,767,590**
TOTAL COSTS				**$20,444,659**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Revised: 3/14/08

Reach 12 (Julian Street to Santa Clara Street)

Alternative B - Widened Channel with Floodwall and Levee

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	6.4	$319,733
Vegetation demolition	$10,000	ACRE	2.6	$26,456
Building demolition	$10,000	ACRE	0.0	$0
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	0.0	$0
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	131,473.7	$2,629,474
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	0.0	$0
Levee Construction				
Levee	$50	C.Y.	2,936.3	$146,813
Bridges and Culverts				
Bridge Removal	$100,000	EA.	0.0	$0
District Cost To Replace Santa Clara St. Bridge	$3,000,000	EA.	0.0	$0
Traffic Control	$100,000	EA.	0.0	$0
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	0.0	$0
Water Main	$100	L.F.	500.0	$50,000
Outfalls (12in. - 54in.)	$5,000	EA.	2.0	$10,000
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$3,182,475
Construction Contingencies (25%)				$795,619
TOTAL CONSTRUCTION				**$3,978,094**
Design (15%)				**$596,714**

Revised: 3/14/08

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Reach 12 (Julian Street to Santa Clara Street)

Alternative B - Widened Channel with Floodwall and Levee

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$198,905**
Inspection (15%)				**$596,714**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	13.0	$26,000,000
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	0.0	$0
Commercial (creek)	$5,000	ACRE	0.0	$0
Commercial (relocate on site)	$500,000	EA.	0.0	$0
Public (partial)	$1,000,000	ACRE	6.1	$6,144,028
Public (creek)	$5,000	ACRE	0.0	$0
Public (relocate on site)		EA.	0.0	$0
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$32,144,028**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	2.6	$529,111
Revegetation (off-site)	$200,000	ACRE	5.3	$1,058,223
Revegetation right-of-way (off-site)	$1,000,000	ACRE	5.3	$5,291,115
MITIGATION COSTS				**$6,878,449**
TOTAL COSTS				**$44,392,904**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Revised: 3/14/08

Reach 13 (Santa Clara Street to William Street)

Alternative B - Widened Channel with Floodwall and Levee

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	11.6	$577,734
Vegetation demolition	$10,000	ACRE	7.1	$71,065
Building demolition	$10,000	ACRE	6.8	$67,752
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	0.0	$0
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	243,962.6	$4,879,252
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	814.8	$814,786
Levee Construction				
Levee	$50	C.Y.	0.0	$0
Bridges and Culverts				
Bridge Removal	$100,000	EA.	1.0	$100,000
District Cost To Replace William St. Bridge	$3,000,000	EA.	1.0	$3,000,000
Traffic Control	$100,000	EA.	1.0	$100,000
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	0.0	$0
Water Main	$100	L.F.	0.0	$0
Outfalls (12in. - 54in.)	$5,000	EA.	1.0	$5,000
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$9,615,589
Construction Contingencies (25%)				$2,403,897
TOTAL CONSTRUCTION				**$12,019,486**
Design (15%)				**$1,802,923**

Revised: 3/14/08

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Reach 13 (Santa Clara Street to William Street)

Alternative B - Widened Channel with Floodwall and Levee

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$600,974**
Inspection (15%)				**$1,802,923**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	59.0	$118,000,000
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	0.0	$0
Commercial (creek)	$5,000	ACRE	0.0	$0
Commercial (relocate on site)	$500,000	EA.	0.0	$0
Public (partial)	$1,000,000	ACRE	0.0	$0
Public (creek)	$5,000	ACRE	0.0	$0
Public (relocate on site)		EA.	0.0	$0
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$118,000,000**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	7.1	$1,421,306
Revegetation (off-site)	$200,000	ACRE	14.2	$2,842,611
Revegetation right-of-way (off-site)	$1,000,000	ACRE	14.2	$14,213,056
MITIGATION COSTS				**$18,476,973**
TOTAL COSTS				**$152,703,279**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Revised: 3/14/08

Reach 14 (William Street to Hwy 280)

Alternative B - Widened Channel with Floodwall and Levee

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	13.3	$665,609
Vegetation demolition	$10,000	ACRE	7.4	$74,076
Building demolition	$10,000	ACRE	0.2	$2,451
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	0.0	$0
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	103,961.5	$2,079,230
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	0.0	$0
Levee Construction				
Levee	$50	C.Y.	44,002.7	$2,200,137
Bridges and Culverts				
Bridge Removal	$100,000	EA.	0.0	$0
District Cost To Replace _ Bridge	$3,000,000	EA.	0.0	$0
Traffic Control	$100,000	EA.	0.0	$0
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	0.0	$0
Water Main	$100	L.F.	0.0	$0
Outfalls (12in. - 54in.)	$5,000	EA.	1.0	$5,000
Outfalls (60in. - 78in.)	$10,000	EA.	1.0	$10,000
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$5,036,502
Construction Contingencies (25%)				$1,259,125
TOTAL CONSTRUCTION				**$6,295,627**
Design (15%)				**$944,344**

Revised: 3/14/08

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Reach 14 (William Street to Hwy 280)

Alternative B - Widened Channel with Floodwall and Levee

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$314,781**
Inspection (15%)				**$944,344**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	5.0	$10,000,000
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	0.0	$0
Commercial (creek)	$5,000	ACRE	0.0	$0
Commercial (relocate on site)	$500,000	EA.	0.0	$0
Public (partial)	$1,000,000	ACRE	13.6	$13,643,568
Public (creek)	$5,000	ACRE	0.0	$0
Public (relocate on site)		EA.	0.0	$0
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$23,643,568**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	7.4	$1,481,511
Revegetation (off-site)	$200,000	ACRE	14.8	$2,963,022
Revegetation right-of-way (off-site)	$1,000,000	ACRE	14.8	$14,815,112
MITIGATION COSTS				**$19,259,645**
TOTAL COSTS				**$51,402,310**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (One Percent Flood Protection)

Revised: 3/14/08

Reaches 4-14 (Montague Expressway to Hwy 280)

Alternative C - Preferred project

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	83.6	$4,181,563
Vegetation demolition	$10,000	ACRE	32.9	$328,600
Building demolition	$10,000	ACRE	8.0	$80,249
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	11.7	$58,315
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	434,378.9	$8,687,578
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	7,153.1	$7,153,064
Levee Construction				
Levee	$50	C.Y.	403,771.2	$20,188,560
Bridges and Culverts				
Bridge Removal	$100,000	EA.	5.0	$500,000
District Cost To Replace Santa Clara St. Bridge	$3,000,000	EA.	5.0	$15,000,000
Traffic Control	$100,000	EA.	5.0	$500,000
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	1,698.2	$339,642
Water Main	$100	L.F.	700.0	$70,000
Outfalls (12in. - 54in.)	$5,000	EA.	7.0	$35,000
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$57,122,572
Construction Contingencies (25%)				$14,280,643
TOTAL CONSTRUCTION				**$71,403,215**

Revised: 3/14/08

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (One Percent Flood Protection)

Reaches 4-14 (Montague Expressway to Hwy 280)

Alternative C - Preferred project

Item	Unit Cost	Unit	Quantity	Amount
Design (15%)				**$10,710,482**
Geotechnical (5%)				**$3,570,161**
Inspection (15%)				**$10,710,482**
				$96,394,340
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	124.0	$248,000,000
Residential (partial)	$1,000,000	ACRE	0.5	$543,352
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	17.7	$17,719,044
Commercial (creek)	$5,000	ACRE	0.8	$4,015
Commercial (relocate on site)	$500,000	EA.	0.0	$0
Public (partial)	$1,000,000	ACRE	29.7	$29,716,184
Public (creek)	$5,000	ACRE	12.5	$62,275
Public (relocate on site)		EA.	2.0	$2
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS			187.2	**$296,044,872**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	40.0	$8,000,351
Revegetation (off-site)	$200,000	ACRE	80.0	$16,000,701
Property acquisition for off-site revegetation	$1,000,000	ACRE	80.0	$80,003,507
MITIGATION COSTS				**$104,004,560**
TOTAL COSTS				**$496,443,772**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,100 cfs Flood Protection)

Revised: 3/14/08

Reaches 4&5 (Montague Expressway to Interstate 880)

Alternative C - Preferred project

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	2.5	$123,223
Vegetation demolition	$10,000	ACRE	0.0	$0
Building demolition	$10,000	ACRE	0.0	$0
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	0.0	$0
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	0.0	$0
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	6,183.3	$6,183,329
Levee Construction				
Levee	$50	C.Y.	0.0	$0
Bridges and Culverts				
Bridge Removal	$100,000	EA.	1.0	$100,000
District Cost To Replace Charcot Ave. Bridge	$3,000,000	EA.	1.0	$3,000,000
Traffic Control	$100,000	EA.	1.0	$100,000
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	0.0	$0
Water Main	$100	L.F.	0.0	$0
Outfalls (12in. - 54in.)	$5,000	EA.	0.0	$0
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$9,506,553
Construction Contingencies (25%)				$2,376,638
TOTAL CONSTRUCTION				**$11,883,191**
Design (15%)				**$1,782,479**

Revised: 3/14/08

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,100 cfs Flood Protection)

Reaches 4&5 (Montague Expressway to Interstate 880)

Alternative C - Preferred project

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$594,160**
Inspection (15%)				**$1,782,479**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	0.0	$0
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	0.0	$0
Commercial (creek)	$5,000	ACRE	0.0	$0
Commercial (relocate on site)	$500,000	EA.	0.0	$0
Public (partial)	$1,000,000	ACRE	0.0	$0
Public (creek)	$5,000	ACRE	0.0	$0
Public (relocate on site)		EA.	0.0	$0
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$0**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	0.0	$0
Revegetation (off-site)	$200,000	ACRE	0.0	$0
Revegetation right-of-way (off-site)	$1,000,000	ACRE	0.0	$0
MITIGATION COSTS				**$0**
TOTAL COSTS				**$16,042,307**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,100 cfs Flood Protection)

Revised: 3/14/08

Reaches 6&7 (Interstate 880 to Old Oakland Rd.)

Alternative C - Preferred project

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	11.5	$577,080
Vegetation demolition	$10,000	ACRE	7.5	$74,619
Building demolition	$10,000	ACRE	0.0	$0
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	0.0	$0
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	68,389.0	$1,367,780
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	451.2	$451,166
Levee Construction				
Levee	$50	C.Y.	3,597.0	$179,848
Bridges and Culverts				
Bridge Removal	$100,000	EA.	0.0	$0
District Cost To Replace _ Bridge	$3,000,000	EA.	0.0	$0
Traffic Control	$100,000	EA.	0.0	$0
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	1,698.2	$339,642
Water Main	$100	L.F.	0.0	$0
Outfalls (12in. - 54in.)	$5,000	EA.	1.0	$5,000
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$2,995,136
Construction Contingencies (25%)				$748,784
TOTAL CONSTRUCTION				**$3,743,920**
Design (15%)				**$561,588**

Revised: 3/14/08

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,100 cfs Flood Protection)

Reaches 6&7 (Interstate 880 to Old Oakland Rd.)

Alternative C - Preferred project

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$187,196**
Inspection (15%)				**$561,588**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	0.0	$0
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	1.3	$1,345,403
Commercial (creek)	$5,000	ACRE	0.0	$0
Commercial (relocate on site)	$500,000	EA.	0.0	$0
Public (partial)	$1,000,000	ACRE	0.8	$756,938
Public (creek)	$5,000	ACRE	0.0	$0
Public (relocate on site)		EA.	0.0	$0
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$2,102,341**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	7.5	$1,492,386
Revegetation (off-site)	$200,000	ACRE	14.9	$2,984,772
Revegetation right-of-way (off-site)	$1,000,000	ACRE	14.9	$14,923,862
MITIGATION COSTS				**$19,401,020**
TOTAL COSTS				**$26,557,653**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,100 cfs Flood Protection)

Revised: 3/14/08

Reach 8a (Oakland Road to upstream limit of golf course)

Alternative C - Preferred project

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	1.5	$73,850
Vegetation demolition	$10,000	ACRE	0.0	$0
Building demolition	$10,000	ACRE	0.0	$0
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	0.0	$0
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	0.0	$0
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	0.0	$0
Levee Construction				
Levee	$50	C.Y.	2,782.7	$139,133
Bridges and Culverts				
Bridge Removal	$100,000	EA.	0.0	$0
District Cost To Replace _ Bridge	$3,000,000	EA.	0.0	$0
Traffic Control	$100,000	EA.	0.0	$0
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	0.0	$0
Water Main	$100	L.F.	0.0	$0
Outfalls (12in. - 54in.)	$5,000	EA.	0.0	$0
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$212,984
Construction Contingencies (25%)				$53,246
TOTAL CONSTRUCTION				**$266,229**
Design (15%)				**$39,934**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,100 cfs Flood Protection)

Reach 8a (Oakland Road to upstream limit of golf course)

Alternative C - Preferred project

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$13,311**
Inspection (15%)				**$39,934**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	0.0	$0
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	0.0	$0
Commercial (creek)	$5,000	ACRE	0.0	$0
Commercial (relocate on site)	$500,000	EA.	0.0	$0
Public (partial)	$1,000,000	ACRE	0.9	$860,224
Public (creek)	$5,000	ACRE	0.0	$0
Public (relocate on site)		EA.	0.0	$0
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$860,224**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	0.0	$0
Revegetation (off-site)	$200,000	ACRE	0.0	$0
Revegetation right-of-way (off-site)	$1,000,000	ACRE	0.0	$0
MITIGATION COSTS				**$0**
TOTAL COSTS				**$1,219,633**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,100 cfs Flood Protection)

Revised: 3/14/08

Reach 8b (upstream limit of golf course to Berryessa Road)

Alternative C - Preferred project

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	7.3	$367,130
Vegetation demolition	$10,000	ACRE	2.0	$19,937
Building demolition	$10,000	ACRE	0.2	$1,514
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	5.8	$29,158
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	56,873.7	$1,137,473
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	178.8	$178,795
Levee Construction				
Levee	$50	C.Y.	33,220.6	$1,661,031
Bridges and Culverts				
Bridge Removal	$100,000	EA.	0.0	$0
District Cost To Replace _ Bridge	$3,000,000	EA.	0.0	$0
Traffic Control	$100,000	EA.	0.0	$0
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	0.0	$0
Water Main	$100	L.F.	0.0	$0
Outfalls (12in. - 54in.)	$5,000	EA.	0.0	$0
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$3,395,037
Construction Contingencies (25%)				$848,759
TOTAL CONSTRUCTION				**$4,243,797**
Design (15%)				**$636,570**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,100 cfs Flood Protection)

Reach 8b (upstream limit of golf course to Berryessa Road)

Alternative C - Preferred project

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$212,190**
Inspection (15%)				**$636,570**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	0.0	$0
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	2.9	$2,874,489
Commercial (creek)	$5,000	ACRE	0.0	$0
Commercial (relocate on site)	$500,000	EA.	0.0	$0
Public (partial)	$1,000,000	ACRE	0.0	$0
Public (creek)	$5,000	ACRE	0.0	$0
Public (relocate on site)		EA.	0.0	$0
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$2,874,489**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	2.0	$398,739
Revegetation (off-site)	$200,000	ACRE	4.0	$797,478
Revegetation right-of-way (off-site)	$1,000,000	ACRE	4.0	$3,987,390
MITIGATION COSTS				**$5,183,607**
TOTAL COSTS				**$13,787,221**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Revised: 3/14/08

Reach 9 (Berryessa Road to Mabury Road)

Alternative C - Preferred project

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	12.0	$597,893
Vegetation demolition	$10,000	ACRE	3.2	$32,405
Building demolition	$10,000	ACRE	1.8	$18,241
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	0.0	$0
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	70,371.1	$1,407,422
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	0.0	$0
Levee Construction				
Levee	$50	C.Y.	28,037.4	$1,401,870
Bridges and Culverts				
Bridge Removal	$100,000	EA.	0.0	$0
District Cost To Replace _ Bridge	$3,000,000	EA.	0.0	$0
Traffic Control	$100,000	EA.	0.0	$0
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	0.0	$0
Water Main	$100	L.F.	200.0	$20,000
Outfalls (12in. - 54in.)	$5,000	EA.	0.0	$0
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$3,477,831
Construction Contingencies (25%)				$869,458
TOTAL CONSTRUCTION				**$4,347,289**
Design (15%)				**$652,093**

Revised: 3/14/08

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Reach 9 (Berryessa Road to Mabury Road)

Alternative C - Preferred project

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$217,364**
Inspection (15%)				**$652,093**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	0.0	$0
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	9.8	$9,820,865
Commercial (creek)	$5,000	ACRE	0.2	$1,105
Commercial (relocate on site)	$500,000	EA.	0.0	$0
Public (partial)	$1,000,000	ACRE	0.0	$0
Public (creek)	$5,000	ACRE	0.0	$0
Public (relocate on site)		EA.	0.0	$0
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$9,821,970**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	3.2	$648,094
Revegetation (off-site)	$200,000	ACRE	6.5	$1,296,187
Revegetation right-of-way (off-site)	$1,000,000	ACRE	6.5	$6,480,936
MITIGATION COSTS				**$8,425,216**
TOTAL COSTS				**$24,116,026**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Revised: 3/14/08

Reach 10 (Mabury Road to Hwy 101)

Alternative C - Preferred project

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	2.8	$140,911
Vegetation demolition	$10,000	ACRE	0.0	$0
Building demolition	$10,000	ACRE	0.0	$0
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	0.0	$0
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	20,079.8	$401,595
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	0.0	$0
Levee Construction				
Levee	$50	C.Y.	25,098.8	$1,254,938
Bridges and Culverts				
Bridge Removal	$100,000	EA.	0.0	$0
District Cost To Replace _ Bridge	$3,000,000	EA.	0.0	$0
Traffic Control	$100,000	EA.	0.0	$0
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	0.0	$0
Water Main	$100	L.F.	0.0	$0
Outfalls (12in. - 54in.)	$5,000	EA.	1.0	$5,000
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$1,802,445
Construction Contingencies (25%)				$450,611
TOTAL CONSTRUCTION				**$2,253,056**
Design (15%)				**$337,958**

Revised: 3/14/08

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Reach 10 (Mabury Road to Hwy 101)

Alternative C - Preferred project

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$112,653**
Inspection (15%)				**$337,958**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	0.0	$0
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	3.7	$3,678,287
Commercial (creek)	$5,000	ACRE	0.6	$2,911
Commercial (relocate on site)	$500,000	EA.	0.0	$0
Public (partial)	$1,000,000	ACRE	1.7	$1,711,804
Public (creek)	$5,000	ACRE	3.4	$16,947
Public (relocate on site)		EA.	0.0	$0
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$5,409,948**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	2.8	$563,644
Revegetation (off-site)	$200,000	ACRE	5.6	$1,127,288
Revegetation right-of-way (off-site)	$1,000,000	ACRE	5.6	$5,636,442
MITIGATION COSTS				**$7,327,374**
TOTAL COSTS				**$15,778,948**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Revised: 3/14/08

Reach 11a (Hwy 101 to Lower Silver Creek)

Alternative C - Preferred project

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	4.3	$216,176
Vegetation demolition	$10,000	ACRE	0.0	$0
Building demolition	$10,000	ACRE	0.0	$0
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	0.0	$0
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	0.0	$0
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	339.8	$339,774
Levee Construction				
Levee	$50	C.Y.	72,994.8	$3,649,739
Bridges and Culverts				
Bridge Removal	$100,000	EA.	0.0	$0
District Cost To Replace _ Bridge	$3,000,000	EA.	0.0	$0
Traffic Control	$100,000	EA.	0.0	$0
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	0.0	$0
Water Main	$100	L.F.	0.0	$0
Outfalls (12in. - 54in.)	$5,000	EA.	0.0	$0
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$4,205,689
Construction Contingencies (25%)				$1,051,422
TOTAL CONSTRUCTION				**$5,257,111**
Design (15%)				**$788,567**

Revised: 3/14/08

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Reach 11a (Hwy 101 to Lower Silver Creek)

Alternative C - Preferred project

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$262,856**
Inspection (15%)				**$788,567**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	0.0	$0
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	0.0	$0
Commercial (creek)	$5,000	ACRE	0.0	$0
Commercial (relocate on site)	$500,000	EA.	0.0	$0
Public (partial)	$1,000,000	ACRE	4.4	$4,404,327
Public (creek)	$5,000	ACRE	5.0	$24,812
Public (relocate on site)		EA.	0.0	$0
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$4,429,140**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	4.3	$864,703
Revegetation (off-site)	$200,000	ACRE	8.6	$1,729,407
Revegetation right-of-way (off-site)	$1,000,000	ACRE	8.6	$8,647,034
MITIGATION COSTS				**$11,241,144**
TOTAL COSTS				**$22,767,383**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Revised: 3/14/08

Reach 11b (Lower Silver Creek to Julian Street)

Alternative C - Preferred project

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	7.9	$394,476
Vegetation demolition	$10,000	ACRE	5.5	$54,884
Building demolition	$10,000	ACRE	0.7	$6,765
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	5.8	$29,158
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	55,635.9	$1,112,717
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	0.0	$0
Levee Construction				
Levee	$50	C.Y.	16,371.3	$818,563
Bridges and Culverts				
Bridge Removal	$100,000	EA.	1.0	$100,000
District Cost To Replace Julian St. Bridge	$3,000,000	EA.	1.0	$3,000,000
Traffic Control	$100,000	EA.	1.0	$100,000
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	0.0	$0
Water Main	$100	L.F.	0.0	$0
Outfalls (12in. - 54in.)	$5,000	EA.	3.0	$15,000
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$5,631,563
Construction Contingencies (25%)				$1,407,891
TOTAL CONSTRUCTION				**$7,039,454**
Design (15%)				**$1,055,918**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Reach 11b (Lower Silver Creek to Julian Street)

Alternative C - Preferred project

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$351,973**
Inspection (15%)				**$1,055,918**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	17.0	$34,000,000
Residential (partial)	$1,000,000	ACRE	0.5	$543,352
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	0.0	$0
Commercial (creek)	$5,000	ACRE	0.0	$0
Commercial (relocate on site)	$500,000	EA.	0.0	$0
Public (partial)	$1,000,000	ACRE	1.9	$1,948,294
Public (creek)	$5,000	ACRE	1.0	$5,102
Public (relocate on site)		EA.	0.0	$0
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$36,496,747**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	5.5	$1,097,677
Revegetation (off-site)	$200,000	ACRE	11.0	$2,195,355
Revegetation right-of-way (off-site)	$1,000,000	ACRE	11.0	$10,976,775
MITIGATION COSTS				**$14,269,807**
TOTAL COSTS				**$60,269,817**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Revised: 3/14/08

Reach 12 (Julian Street to Santa Clara Street)

Alternative C - Preferred project

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	7.5	$372,694
Vegetation demolition	$10,000	ACRE	3.2	$31,882
Building demolition	$10,000	ACRE	1.0	$9,720
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	0.0	$0
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	59,068.0	$1,181,360
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	0.0	$0
Levee Construction				
Levee	$50	C.Y.	31,963.7	$1,598,187
Bridges and Culverts				
Bridge Removal	$100,000	EA.	1.0	$100,000
District Cost To Replace Santa Clara St. Bridge	$3,000,000	EA.	1.0	$3,000,000
Traffic Control	$100,000	EA.	1.0	$100,000
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	0.0	$0
Water Main	$100	L.F.	500.0	$50,000
Outfalls (12in. - 54in.)	$5,000	EA.	2.0	$10,000
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$6,453,843
Construction Contingencies (25%)				$1,613,461
TOTAL CONSTRUCTION				**$8,067,304**
Design (15%)				**$1,210,096**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Reach 12 (Julian Street to Santa Clara Street)

Alternative C - Preferred project

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$403,365**
Inspection (15%)				**$1,210,096**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	22.0	$44,000,000
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	0.0	$0
Commercial (creek)	$5,000	ACRE	0.0	$0
Commercial (relocate on site)	$500,000	EA.	0.0	$0
Public (partial)	$1,000,000	ACRE	3.9	$3,852,068
Public (creek)	$5,000	ACRE	3.1	$15,414
Public (relocate on site)		EA.	0.0	$0
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$47,867,482**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	3.2	$637,637
Revegetation (off-site)	$200,000	ACRE	6.4	$1,275,274
Revegetation right-of-way (off-site)	$1,000,000	ACRE	6.4	$6,376,372
MITIGATION COSTS				**$8,289,284**
TOTAL COSTS				**$67,047,627**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Revised: 3/14/08

Reach 13 (Santa Clara Street to William Street)

Alternative C - Preferred project

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	8.8	$441,510
Vegetation demolition	$10,000	ACRE	2.6	$25,675
Building demolition	$10,000	ACRE	3.8	$37,839
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	0.0	$0
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	0.0	$0
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	0.0	$0
Levee Construction				
Levee	$50	C.Y.	47,873.6	$2,393,680
Bridges and Culverts				
Bridge Removal	$100,000	EA.	2.0	$200,000
District Cost To Replace San Antonio and William St	$3,000,000	EA.	2.0	$6,000,000
Traffic Control	$100,000	EA.	2.0	$200,000
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	0.0	$0
Water Main	$100	L.F.	0.0	$0
Outfalls (12in. - 54in.)	$5,000	EA.	0.0	$0
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$9,298,704
Construction Contingencies (25%)				$2,324,676
TOTAL CONSTRUCTION				**$11,623,380**
Design (15%)				**$1,743,507**

Revised: 3/14/08

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Reach 13 (Santa Clara Street to William Street)

Alternative C - Preferred project

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$581,169**
Inspection (15%)				**$1,743,507**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	79.0	$158,000,000
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	0.0	$0
Commercial (creek)	$5,000	ACRE	0.0	$0
Commercial (relocate on site)	$500,000	EA.	0.0	$0
Public (partial)	$1,000,000	ACRE	2.5	$2,538,961
Public (creek)	$5,000	ACRE	0.0	$0
Public (relocate on site)		EA.	0.0	$0
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$160,538,961**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	2.6	$513,507
Revegetation (off-site)	$200,000	ACRE	5.1	$1,027,014
Revegetation right-of-way (off-site)	$1,000,000	ACRE	5.1	$5,135,072
MITIGATION COSTS				**$6,675,593**
TOTAL COSTS				**$182,906,118**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Revised: 3/14/08

Reach 14 (William Street to Hwy 280)

Alternative C - Preferred project

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	17.5	$876,620
Vegetation demolition	$10,000	ACRE	8.9	$89,198
Building demolition	$10,000	ACRE	0.6	$6,170
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	0.0	$0
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	103,961.5	$2,079,230
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	0.0	$0
Levee Construction				
Levee	$50	C.Y.	141,831.4	$7,091,571
Bridges and Culverts				
Bridge Removal	$100,000	EA.	0.0	$0
District Cost To Replace _ Bridge	$3,000,000	EA.	0.0	$0
Traffic Control	$100,000	EA.	0.0	$0
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	0.0	$0
Water Main	$100	L.F.	0.0	$0
Outfalls (12in. - 54in.)	$5,000	EA.	0.0	$0
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$10,142,788
Construction Contingencies (25%)				$2,535,697
TOTAL CONSTRUCTION				**$12,678,485**
Design (15%)				**$1,901,773**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Reach 14 (William Street to Hwy 280)

Alternative C - Preferred project

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$633,924**
Inspection (15%)				**$1,901,773**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	6.0	$12,000,000
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	0.0	$0
Commercial (creek)	$5,000	ACRE	0.0	$0
Commercial (relocate on site)	$500,000	EA.	0.0	$0
Public (partial)	$1,000,000	ACRE	13.6	$13,643,568
Public (creek)	$5,000	ACRE	0.0	$0
Public (relocate on site)		EA.	2.0	$2
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$25,643,570**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	8.9	$1,783,963
Revegetation (off-site)	$200,000	ACRE	17.8	$3,567,925
Revegetation right-of-way (off-site)	$1,000,000	ACRE	17.8	$17,839,626
MITIGATION COSTS				**$23,191,513**
TOTAL COSTS				**$65,951,038**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (One Percent Flood Protection)

Revised: 3/14/08

Reaches 4-14 (Montague Expressway to Hwy 280)

Alternative D - 0.035% Longitudinal Slope

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	131.2	$6,558,124
Vegetation demolition	$10,000	ACRE	90.0	$900,209
Building demolition	$10,000	ACRE	6.0	$60,271
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	5.8	$29,158
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	992,351.0	$19,847,020
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	7,793.5	$7,793,537
Levee Construction				
Levee	$50	C.Y.	198,021.0	$9,901,052
Bridges and Culverts				
Bridge Removal	$100,000	EA.	1.0	$100,000
District Cost To Replace Santa Clara St. Bridge	$3,000,000	EA.	1.0	$3,000,000
Traffic Control	$100,000	EA.	1.0	$100,000
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	2,198.2	$439,642
Water Main	$100	L.F.	700.0	$70,000
Outfalls (12in. - 54in.)	$5,000	EA.	22.0	$110,000
Outfalls (60in. - 78in.)	$10,000	EA.	1.0	$10,000
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$48,919,012
Construction Contingencies (25%)				$12,229,753
TOTAL CONSTRUCTION				**$61,148,765**

Revised: 3/14/08

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (One Percent Flood Protection)

Reaches 4-14 (Montague Expressway to Hwy 280)

Alternative D - 0.035% Longitudinal Slope

Item	Unit Cost	Unit	Quantity	Amount
Design (15%)				**$9,172,315**
Geotechnical (5%)				**$3,057,438**
Inspection (15%)				**$9,172,315**
				$82,550,833
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	90.0	$180,000,000
Residential (partial)	$1,000,000	ACRE	0.8	$830,913
Residential (creek)	$5,000	ACRE	0.5	$2,382
Commercial (partial)	$1,000,000	ACRE	8.8	$8,837,943
Commercial (creek)	$5,000	ACRE	2.1	$10,683
Commercial (relocate on site)	$500,000	EA.	1.9	$949,055
Public (partial)	$1,000,000	ACRE	26.7	$26,731,251
Public (creek)	$5,000	ACRE	30.7	$153,462
Public (relocate on site)	$500,000	EA.	0.0	$0
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS			161.6	**$217,515,689**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	90.0	$18,004,171
Revegetation (off-site)	$200,000	ACRE	180.0	$36,008,341
Property acquisition for off-site revegetation	$1,000,000	ACRE	180.0	$180,041,706
MITIGATION COSTS			450	**$234,054,218**
TOTAL COSTS				**$534,120,740**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,100 cfs Flood Protection)

Revised: 3/14/08

Reaches 4 & 5 (Montague Expressway to Charcot Avenue)

Alternative D - 0.035% Longitudinal Slope

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	2.5	$123,223
Vegetation demolition	$10,000	ACRE	0.0	$0
Building demolition	$10,000	ACRE	0.0	$0
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	0.0	$0
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	0.0	$0
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	6,477.0	$6,477,019
Levee Construction				
Levee	$50	C.Y.	0.0	$0
Bridges and Culverts				
Bridge Removal	$100,000	EA.	1.0	$100,000
District Cost To Replace Charcot Ave. Bridge	$3,000,000	EA.	1.0	$3,000,000
Traffic Control	$100,000	EA.	1.0	$100,000
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	0.0	$0
Water Main	$100	L.F.	0.0	$0
Outfalls (12in. - 54in.)	$5,000	EA.	0.0	$0
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$9,800,242
Construction Contingencies (25%)				$2,450,060
TOTAL CONSTRUCTION				**$12,250,302**
Design (15%)				**$1,837,545**

Revised: 3/14/08

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,100 cfs Flood Protection)

Reaches 4 & 5 (Montague Expressway to Charcot Avenue)

Alternative D - 0.035% Longitudinal Slope

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$612,515**
Inspection (15%)				**$1,837,545**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	0.0	$0
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	0.0	$0
Commercial (creek)	$5,000	ACRE	0.0	$0
Commercial (relocate on site)	$500,000	EA.	0.0	$0
Public (partial)	$1,000,000	ACRE	0.0	$0
Public (creek)	$5,000	ACRE	0.0	$0
Public (relocate on site)		EA.	0.0	$0
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$0**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	0.0	$0
Revegetation (off-site)	$200,000	ACRE	0.0	$0
Revegetation right-of-way (off-site)	$1,000,000	ACRE	0.0	$0
MITIGATION COSTS				**$0**
TOTAL COSTS				**$16,537,908**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,100 cfs Flood Protection)

Revised: 3/14/08

Reaches 6 (Interstate 880 to Ridder Park Drive)

Alternative D - 0.035% Longitudinal Slope

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	11.5	$577,080
Vegetation demolition	$10,000	ACRE	7.5	$74,619
Building demolition	$10,000	ACRE	0.0	$0
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	0.0	$0
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	68,389.0	$1,367,780
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	561.7	$561,662
Levee Construction				
Levee	$50	C.Y.	3,017.7	$150,883
Bridges and Culverts				
Bridge Removal	$100,000	EA.	0.0	$0
District Cost To Replace _ Bridge	$3,000,000	EA.	0.0	$0
Traffic Control	$100,000	EA.	0.0	$0
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	1,698.2	$339,642
Water Main	$100	L.F.	0.0	$0
Outfalls (12in. - 54in.)	$5,000	EA.	1.0	$5,000
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$3,076,666
Construction Contingencies (25%)				$769,167
TOTAL CONSTRUCTION				**$3,845,833**
Design (15%)				**$576,875**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,100 cfs Flood Protection)

Reaches 6 (Interstate 880 to Ridder Park Drive)

Alternative D - 0.035% Longitudinal Slope

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$192,292**
Inspection (15%)				**$576,875**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	0.0	$0
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	1.3	$1,345,403
Commercial (creek)	$5,000	ACRE	0.0	$0
Commercial (relocate on site)	$500,000	EA.	0.0	$0
Public (partial)	$1,000,000	ACRE	0.8	$756,938
Public (creek)	$5,000	ACRE	0.0	$0
Public (relocate on site)		EA.	0.0	$0
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$2,102,341**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	7.5	$1,492,386
Revegetation (off-site)	$200,000	ACRE	14.9	$2,984,772
Revegetation right-of-way (off-site)	$1,000,000	ACRE	14.9	$14,923,862
MITIGATION COSTS				**$19,401,020**
TOTAL COSTS				**$26,695,236**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,100 cfs Flood Protection)

Revised: 3/14/08

Reach 8a (Oakland Road to upstream limit of golf course)

Alternative D - 0.035% Longitudinal Slope

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	10.5	$523,099
Vegetation demolition	$10,000	ACRE	9.0	$89,850
Building demolition	$10,000	ACRE	0.0	$0
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	0.0	$0
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	42,731.6	$854,632
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	0.0	$0
Levee Construction				
Levee	$50	C.Y.	2,862.7	$143,134
Bridges and Culverts				
Bridge Removal	$100,000	EA.	0.0	$0
District Cost To Replace _ Bridge	$3,000,000	EA.	0.0	$0
Traffic Control	$100,000	EA.	0.0	$0
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	0.0	$0
Water Main	$100	L.F.	0.0	$0
Outfalls (12in. - 54in.)	$5,000	EA.	5.0	$25,000
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$1,635,715
Construction Contingencies (25%)				$408,929
TOTAL CONSTRUCTION				**$2,044,643**
Design (15%)				**$306,697**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,100 cfs Flood Protection)

Reach 8a (Oakland Road to upstream limit of golf course)

Alternative D - 0.035% Longitudinal Slope

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$102,232**
Inspection (15%)				**$306,697**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	0.0	$0
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	0.0	$0
Commercial (creek)	$5,000	ACRE	0.0	$0
Commercial (relocate on site)	$500,000	EA.	0.0	$0
Public (partial)	$1,000,000	ACRE	0.9	$860,224
Public (creek)	$5,000	ACRE	11.5	$57,492
Public (relocate on site)		EA.	0.0	$0
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$917,716**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	9.0	$1,796,996
Revegetation (off-site)	$200,000	ACRE	18.0	$3,593,992
Revegetation right-of-way (off-site)	$1,000,000	ACRE	18.0	$17,969,960
MITIGATION COSTS				**$23,360,948**
TOTAL COSTS				**$27,038,932**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,100 cfs Flood Protection)

Revised: 3/14/08

Reach 8b (upstream limit of golf course to Berryessa Road)

Alternative D - 0.035% Longitudinal Slope

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	16.2	$809,213
Vegetation demolition	$10,000	ACRE	7.9	$78,794
Building demolition	$10,000	ACRE	0.3	$3,305
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	0.0	$0
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	133,353.5	$2,667,071
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	0.0	$0
Levee Construction				
Levee	$50	C.Y.	21,827.0	$1,091,351
Bridges and Culverts				
Bridge Removal	$100,000	EA.	0.0	$0
District Cost To Replace _ Bridge	$3,000,000	EA.	0.0	$0
Traffic Control	$100,000	EA.	0.0	$0
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	0.0	$0
Water Main	$100	L.F.	0.0	$0
Outfalls (12in. - 54in.)	$5,000	EA.	2.0	$10,000
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$4,659,734
Construction Contingencies (25%)				$1,164,934
TOTAL CONSTRUCTION				**$5,824,668**
Design (15%)				**$873,700**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,100 cfs Flood Protection)

Reach 8b (upstream limit of golf course to Berryessa Road)

Alternative D - 0.035% Longitudinal Slope

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$291,233**
Inspection (15%)				**$873,700**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	0.0	$0
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	3.3	$3,305,101
Commercial (creek)	$5,000	ACRE	0.0	$0
Commercial (relocate on site)	$500,000	EA.	0.3	$165,252
Public (partial)	$1,000,000	ACRE	0.0	$0
Public (creek)	$5,000	ACRE	0.0	$0
Public (relocate on site)		EA.	0.0	$0
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$3,470,353**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	7.9	$1,575,878
Revegetation (off-site)	$200,000	ACRE	15.8	$3,151,756
Revegetation right-of-way (off-site)	$1,000,000	ACRE	15.8	$15,758,781
MITIGATION COSTS				**$20,486,415**
TOTAL COSTS				**$31,820,070**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Revised: 3/14/08

Reach 9 (Berryessa Road to Mabury Road)

Alternative D - 0.035% Longitudinal Slope

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	15.1	$757,000
Vegetation demolition	$10,000	ACRE	9.6	$95,861
Building demolition	$10,000	ACRE	1.6	$15,676
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	0.0	$0
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	145,936.1	$2,918,722
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	0.0	$0
Levee Construction				
Levee	$50	C.Y.	16,417.1	$820,856
Bridges and Culverts				
Bridge Removal	$100,000	EA.	0.0	$0
District Cost To Replace _ Bridge	$3,000,000	EA.	0.0	$0
Traffic Control	$100,000	EA.	0.0	$0
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	0.0	$0
Water Main	$100	L.F.	200.0	$20,000
Outfalls (12in. - 54in.)	$5,000	EA.	0.0	$0
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$4,628,115
Construction Contingencies (25%)				$1,157,029
TOTAL CONSTRUCTION				**$5,785,144**
Design (15%)				**$867,772**

Revised: 3/14/08

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Reach 9 (Berryessa Road to Mabury Road)

Alternative D - 0.035% Longitudinal Slope

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$289,257**
Inspection (15%)				**$867,772**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	0.0	$0
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	2.4	$2,390,183
Commercial (creek)	$5,000	ACRE	1.6	$7,881
Commercial (relocate on site)	$500,000	EA.	1.6	$783,803
Public (partial)	$1,000,000	ACRE	0.0	$0
Public (creek)	$5,000	ACRE	0.0	$0
Public (relocate on site)		EA.	0.0	$0
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$3,181,867**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	9.6	$1,917,216
Revegetation (off-site)	$200,000	ACRE	19.2	$3,834,433
Revegetation right-of-way (off-site)	$1,000,000	ACRE	19.2	$19,172,164
MITIGATION COSTS				**$24,923,813**
TOTAL COSTS				**$35,915,624**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Revised: 3/14/08

Reach 10 (Mabury Road to Hwy 101)

Alternative D - 0.035% Longitudinal Slope

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	7.2	$362,476
Vegetation demolition	$10,000	ACRE	5.2	$51,919
Building demolition	$10,000	ACRE	0.0	$0
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	0.0	$0
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	44,144.2	$882,884
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	0.0	$0
Levee Construction				
Levee	$50	C.Y.	10,746.5	$537,327
Bridges and Culverts				
Bridge Removal	$100,000	EA.	0.0	$0
District Cost To Replace _ Bridge	$3,000,000	EA.	0.0	$0
Traffic Control	$100,000	EA.	0.0	$0
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	0.0	$0
Water Main	$100	L.F.	0.0	$0
Outfalls (12in. - 54in.)	$5,000	EA.	1.0	$5,000
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$1,839,606
Construction Contingencies (25%)				$459,902
TOTAL CONSTRUCTION				**$2,299,508**
Design (15%)				**$344,926**

Revised: 3/14/08

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Reach 10 (Mabury Road to Hwy 101)

Alternative D - 0.035% Longitudinal Slope

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$114,975**
Inspection (15%)				**$344,926**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	0.0	$0
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	1.8	$1,797,255
Commercial (creek)	$5,000	ACRE	0.6	$2,802
Commercial (relocate on site)	$500,000	EA.	0.0	$0
Public (partial)	$1,000,000	ACRE	1.1	$1,100,427
Public (creek)	$5,000	ACRE	3.4	$17,183
Public (relocate on site)		EA.	0.0	$0
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$2,917,667**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	5.2	$1,038,383
Revegetation (off-site)	$200,000	ACRE	10.4	$2,076,767
Revegetation right-of-way (off-site)	$1,000,000	ACRE	10.4	$10,383,835
MITIGATION COSTS				**$13,498,985**
TOTAL COSTS				**$19,520,988**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Revised: 3/14/08

Reach 11a (Hwy 101 to Lower Silver Creek)

Alternative D - 0.035% Longitudinal Slope

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	6.5	$324,928
Vegetation demolition	$10,000	ACRE	8.0	$80,406
Building demolition	$10,000	ACRE	0.0	$0
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	0.0	$0
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	39,226.5	$784,531
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	273.9	$273,891
Levee Construction				
Levee	$50	C.Y.	44,426.7	$2,221,334
Bridges and Culverts				
Bridge Removal	$100,000	EA.	0.0	$0
District Cost To Replace _ Bridge	$3,000,000	EA.	0.0	$0
Traffic Control	$100,000	EA.	0.0	$0
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	0.0	$0
Water Main	$100	L.F.	0.0	$0
Outfalls (12in. - 54in.)	$5,000	EA.	0.0	$0
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$3,685,090
Construction Contingencies (25%)				$921,272
TOTAL CONSTRUCTION				**$4,606,362**
Design (15%)				**$690,954**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Reach 11a (Hwy 101 to Lower Silver Creek)

Alternative D - 0.035% Longitudinal Slope

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$230,318**
Inspection (15%)				**$690,954**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	0.0	$0
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	0.0	$0
Commercial (creek)	$5,000	ACRE	0.0	$0
Commercial (relocate on site)	$500,000	EA.	0.0	$0
Public (partial)	$1,000,000	ACRE	3.4	$3,368,616
Public (creek)	$5,000	ACRE	4.8	$23,772
Public (relocate on site)		EA.	0.0	$0
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$3,392,389**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	8.0	$1,608,115
Revegetation (off-site)	$200,000	ACRE	16.1	$3,216,231
Revegetation right-of-way (off-site)	$1,000,000	ACRE	16.1	$16,081,155
MITIGATION COSTS				**$20,905,501**
TOTAL COSTS				**$30,516,479**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Revised: 3/14/08

Reach 11b (Lower Silver Creek to Julian Street)

Alternative D - 0.035% Longitudinal Slope

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	9.8	$490,598
Vegetation demolition	$10,000	ACRE	8.2	$82,176
Building demolition	$10,000	ACRE	0.5	$5,219
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	5.8	$29,158
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	106,700.5	$2,134,010
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	354.9	$354,919
Levee Construction				
Levee	$50	C.Y.	2,282.2	$114,108
Bridges and Culverts				
Bridge Removal	$100,000	EA.	0.0	$0
District Cost To Replace Julian St. Bridge	$3,000,000	EA.	0.0	$0
Traffic Control	$100,000	EA.	0.0	$0
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	0.0	$0
Water Main	$100	L.F.	0.0	$0
Outfalls (12in. - 54in.)	$5,000	EA.	3.0	$15,000
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$3,225,187
Construction Contingencies (25%)				$806,297
TOTAL CONSTRUCTION				**$4,031,484**
Design (15%)				**$604,723**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Reach 11b (Lower Silver Creek to Julian Street)

Alternative D - 0.035% Longitudinal Slope

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$201,574**
Inspection (15%)				**$604,723**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	5.0	$10,000,000
Residential (partial)	$1,000,000	ACRE	0.8	$830,913
Residential (creek)	$5,000	ACRE	0.5	$2,382
Commercial (partial)	$1,000,000	ACRE	0.0	$0
Commercial (creek)	$5,000	ACRE	0.0	$0
Commercial (relocate on site)	$500,000	EA.	0.0	$0
Public (partial)	$1,000,000	ACRE	1.6	$1,636,131
Public (creek)	$5,000	ACRE	1.5	$7,359
Public (relocate on site)		EA.	0.0	$0
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$12,476,785**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	8.2	$1,643,520
Revegetation (off-site)	$200,000	ACRE	16.4	$3,287,040
Revegetation right-of-way (off-site)	$1,000,000	ACRE	16.4	$16,435,202
MITIGATION COSTS				**$21,365,762**
TOTAL COSTS				**$39,285,050**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Revised: 3/14/08

Reach 12 (Julian Street to Santa Clara Street)

Alternative D - 0.035% Longitudinal Slope

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	10.7	$536,925
Vegetation demolition	$10,000	ACRE	6.9	$68,756
Building demolition	$10,000	ACRE	0.6	$6,261
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	0.0	$0
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	93,750.9	$1,875,018
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	126.0	$126,047
Levee Construction				
Levee	$50	C.Y.	9,125.6	$456,279
Bridges and Culverts				
Bridge Removal	$100,000	EA.	0.0	$0
District Cost To Replace Santa Clara St. Bridge	$3,000,000	EA.	0.0	$0
Traffic Control	$100,000	EA.	0.0	$0
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	0.0	$0
Water Main	$100	L.F.	500.0	$50,000
Outfalls (12in. - 54in.)	$5,000	EA.	2.0	$10,000
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$3,129,286
Construction Contingencies (25%)				$782,322
TOTAL CONSTRUCTION				**$3,911,608**
Design (15%)				**$586,741**

Revised: 3/14/08

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Reach 12 (Julian Street to Santa Clara Street)

Alternative D - 0.035% Longitudinal Slope

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$195,580**
Inspection (15%)				**$586,741**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	22.0	$44,000,000
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	0.0	$0
Commercial (creek)	$5,000	ACRE	0.0	$0
Commercial (relocate on site)	$500,000	EA.	0.0	$0
Public (partial)	$1,000,000	ACRE	4.7	$4,700,975
Public (creek)	$5,000	ACRE	1.8	$9,024
Public (relocate on site)		EA.	0.0	$0
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$48,709,999**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	6.9	$1,375,126
Revegetation (off-site)	$200,000	ACRE	13.8	$2,750,252
Revegetation right-of-way (off-site)	$1,000,000	ACRE	13.8	$13,751,259
MITIGATION COSTS				**$17,876,637**
TOTAL COSTS				**$71,867,306**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Revised: 3/14/08

Reach 13 (Santa Clara Street to William Street)

Alternative D - 0.035% Longitudinal Slope

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	19.4	$972,137
Vegetation demolition	$10,000	ACRE	15.3	$153,022
Building demolition	$10,000	ACRE	2.6	$26,248
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	0.0	$0
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	157,055.1	$3,141,101
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	0.0	$0
Levee Construction				
Levee	$50	C.Y.	10,710.2	$535,509
Bridges and Culverts				
Bridge Removal	$100,000	EA.	0.0	$0
District Cost To Replace San Antonio and William St	$3,000,000	EA.	0.0	$0
Traffic Control	$100,000	EA.	0.0	$0
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	500.0	$100,000
Water Main	$100	L.F.	0.0	$0
Outfalls (12in. - 54in.)	$5,000	EA.	4.0	$20,000
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$4,948,017
Construction Contingencies (25%)				$1,237,004
TOTAL CONSTRUCTION				**$6,185,021**
Design (15%)				**$927,753**

Revised: 3/14/08

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Reach 13 (Santa Clara Street to William Street)

Alternative D - 0.035% Longitudinal Slope

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$309,251**
Inspection (15%)				**$927,753**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	57.0	$114,000,000
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	0.0	$0
Commercial (creek)	$5,000	ACRE	0.0	$0
Commercial (relocate on site)	$500,000	EA.	0.0	$0
Public (partial)	$1,000,000	ACRE	1.0	$1,019,103
Public (creek)	$5,000	ACRE	3.6	$18,042
Public (relocate on site)		EA.	0.0	$0
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$115,037,145**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	15.3	$3,060,435
Revegetation (off-site)	$200,000	ACRE	30.6	$6,120,870
Revegetation right-of-way (off-site)	$1,000,000	ACRE	30.6	$30,604,352
MITIGATION COSTS				**$39,785,658**
TOTAL COSTS				**$163,172,581**

Revised: 3/14/08

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Reach 14 (William Street to Hwy 280)

Alternative D - 0.035% Longitudinal Slope

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	21.6	$1,081,443
Vegetation demolition	$10,000	ACRE	12.5	$124,806
Building demolition	$10,000	ACRE	0.4	$3,562
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	0.0	$0
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	161,063.6	$3,221,271
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	0.0	$0
Levee Construction				
Levee	$50	C.Y.	76,605.4	$3,830,272
Bridges and Culverts				
Bridge Removal	$100,000	EA.	0.0	$0
District Cost To Replace _ Bridge	$3,000,000	EA.	0.0	$0
Traffic Control	$100,000	EA.	0.0	$0
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	0.0	$0
Water Main	$100	L.F.	0.0	$0
Outfalls (12in. - 54in.)	$5,000	EA.	4.0	$20,000
Outfalls (60in. - 78in.)	$10,000	EA.	1.0	$10,000
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$8,291,355
Construction Contingencies (25%)				$2,072,839
TOTAL CONSTRUCTION				**$10,364,193**
Design (15%)				**$1,554,629**

Revised: 3/14/08

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Reach 14 (William Street to Hwy 280)

Alternative D - 0.035% Longitudinal Slope

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$518,210**
Inspection (15%)				**$1,554,629**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	6.0	$12,000,000
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	0.0	$0
Commercial (creek)	$5,000	ACRE	0.0	$0
Commercial (relocate on site)	$500,000	EA.	0.0	$0
Public (partial)	$1,000,000	ACRE	13.3	$13,288,837
Public (creek)	$5,000	ACRE	4.1	$20,590
Public (relocate on site)		EA.	0.0	$0
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$25,309,426**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	12.5	$2,496,114
Revegetation (off-site)	$200,000	ACRE	25.0	$4,992,227
Revegetation right-of-way (off-site)	$1,000,000	ACRE	25.0	$24,961,137
MITIGATION COSTS				**$32,449,478**
TOTAL COSTS				**$71,750,565**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (One Percent Flood Protection)

Revised: 4/2/09

Reaches 4-14 (Montague Expressway to Hwy 280)

Alternative E - 0.035% Longitudinal Slope

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	135.8	$6,787,705
Vegetation demolition	$10,000	ACRE	84.7	$846,585
Building demolition	$10,000	ACRE	11.4	$114,460
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	5.8	$29,158
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	1,752,600.7	$35,052,014
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	7,932.1	$7,932,111
Levee Construction				
Levee	$50	C.Y.	133,373.9	$6,668,695
Bridges and Culverts				
Bridge Removal	$100,000	EA.	1.0	$100,000
District Cost To Replace Bridges	$3,000,000	EA.	1.0	$3,000,000
Traffic Control	$100,000	EA.	1.0	$100,000
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	280.0	$28,000
Sanitary Sewer Line Relocation	$200	L.F.	2,198.2	$439,642
Water Main	$100	L.F.	700.0	$70,000
Outfalls (12in. - 54in.)	$5,000	EA.	35.0	$175,000
Outfalls (60in. - 78in.)	$10,000	EA.	2.0	$20,000
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$61,363,369
Construction Contingencies (25%)				$15,340,842
TOTAL CONSTRUCTION				**$76,704,211**
Design (15%)				**$11,505,632**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (One Percent Flood Protection)

Revised: 4/2/09

Reaches 4-14 (Montague Expressway to Hwy 280)

Alternative E - 0.035% Longitudinal Slope

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$3,835,211**
Inspection (15%)				**$11,505,632**
				$103,550,684
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	123.0	$246,000,000
Residential (partial)	$1,000,000	ACRE	0.6	$605,881
Residential (creek)	$5,000	ACRE	0.4	$1,963
Commercial (partial)	$1,000,000	ACRE	8.0	$7,995,570
Commercial (creek)	$5,000	ACRE	1.9	$9,593
Commercial (relocate on site)	$500,000	EA.	0.8	$378,122
Public (partial)	$1,000,000	ACRE	21.4	$21,359,828
Public (creek)	$5,000	ACRE	34.3	$171,713
Public (relocate on site)	$500,000	EA.	1.8	$894,537
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS			192.2	**$277,417,207**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	87.4	$17,484,253
Revegetation (off-site)	$200,000	ACRE	174.8	$34,968,506
Property acquisition for off-site revegetation	$1,000,000	ACRE	174.8	$174,842,531
MITIGATION COSTS				**$227,295,290**
TOTAL COSTS				**$608,263,181**

Revised: 4/2/09

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,100 cfs Flood Protection)

Reaches 4 & 5 (Montague Expressway to Interstate 880)

Alternative E - 0.035% Longitudinal Slope

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	2.5	$123,223
Vegetation demolition	$10,000	ACRE	0.0	$0
Building demolition	$10,000	ACRE	0.0	$0
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	0.0	$0
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	0.0	$0
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	6,477.1	$6,477,065
Levee Construction				
Levee	$50	C.Y.	0.0	$0
Bridges and Culverts				
Bridge Removal	$100,000	EA.	1.0	$100,000
District Cost To Replace Charcot Ave. Bridge	$3,000,000	EA.	1.0	$3,000,000
Traffic Control	$100,000	EA.	1.0	$100,000
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	0.0	$0
Water Main	$100	L.F.	0.0	$0
Outfalls (12in. - 54in.)	$5,000	EA.	0.0	$0
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$9,800,288
Construction Contingencies (25%)				$2,450,072
TOTAL CONSTRUCTION				**$12,250,360**

Revised: 4/2/09

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,100 cfs Flood Protection)

Reaches 4 & 5 (Montague Expressway to Interstate 880)

Alternative E - 0.035% Longitudinal Slope

Item	Unit Cost	Unit	Quantity	Amount
Design (15%)				**$1,837,554**
Geotechnical (5%)				**$612,518**
Inspection (15%)				**$1,837,554**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	0.0	$0
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	0.0	$0
Commercial (creek)	$5,000	ACRE	0.0	$0
Commercial (relocate on site)	$500,000	EA.	0.0	$0
Public (partial)	$1,000,000	ACRE	0.0	$0
Public (creek)	$5,000	ACRE	0.0	$0
Public (relocate on site)	$500,000	EA.	0.0	$0
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$0**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	0.0	$0
Revegetation (off-site)	$200,000	ACRE	0.0	$0
Revegetation right-of-way (off-site)	$1,000,000	ACRE	0.0	$0
MITIGATION COSTS				**$0**
TOTAL COSTS				**$16,537,986**

Revised: 4/2/09

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,100 cfs Flood Protection)

Reaches 6 &7 (Interstate 880 to Old Oakland Road)

Alternative E - 0.035% Longitudinal Slope

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	11.5	$577,080
Vegetation demolition	$10,000	ACRE	7.5	$74,619
Building demolition	$10,000	ACRE	0.0	$0
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	0.0	$0
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	68,389.0	$1,367,780
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	561.7	$561,662
Levee Construction				
Levee	$50	C.Y.	3,017.7	$150,883
Bridges and Culverts				
Bridge Removal	$100,000	EA.	0.0	$0
District Cost To Replace Bridge	$3,000,000	EA.	0.0	$0
Traffic Control	$100,000	EA.	0.0	$0
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	1,698.2	$339,642
Water Main	$100	L.F.	0.0	$0
Outfalls (12in. - 54in.)	$5,000	EA.	1.0	$5,000
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$3,076,666
Construction Contingencies (25%)				$769,167
TOTAL CONSTRUCTION				**$3,845,833**

Revised: 4/2/09

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,100 cfs Flood Protection)

Reaches 6 &7 (Interstate 880 to Old Oakland Road)

Alternative E - 0.035% Longitudinal Slope

Item	Unit Cost	Unit	Quantity	Amount
Design (15%)				**$576,875**
Geotechnical (5%)				**$192,292**
Inspection (15%)				**$576,875**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	0.0	$0
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	1.3	$1,345,403
Commercial (creek)	$5,000	ACRE	0.0	$0
Commercial (relocate on site)	$500,000	EA.	0.0	$0
Public (partial)	$1,000,000	ACRE	0.8	$756,938
Public (creek)	$5,000	ACRE	0.0	$0
Public (relocate on site)	$500,000	EA.	0.0	$0
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$2,102,341**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	7.5	$1,492,386
Revegetation (off-site)	$200,000	ACRE	14.9	$2,984,772
Revegetation right-of-way (off-site)	$1,000,000	ACRE	14.9	$14,923,862
MITIGATION COSTS				**$19,401,020**
TOTAL COSTS				**$26,695,236**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,100 cfs Flood Protection)

Revised: 4/2/09

Reach 8a (Old Oakland Road to Upstream Limit of Golf Course)

Alternative E - 0.035% Longitudinal Slope

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	10.5	$523,099
Vegetation demolition	$10,000	ACRE	9.0	$89,850
Building demolition	$10,000	ACRE	0.0	$0
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	0.0	$0
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	42,731.6	$854,632
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	0.0	$0
Levee Construction				
Levee	$50	C.Y.	2,205.0	$110,252
Bridges and Culverts				
Bridge Removal	$100,000	EA.	0.0	$0
District Cost To Replace Bridge	$3,000,000	EA.	0.0	$0
Traffic Control	$100,000	EA.	0.0	$0
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	0.0	$0
Water Main	$100	L.F.	0.0	$0
Outfalls (12in. - 54in.)	$5,000	EA.	6.0	$30,000
Outfalls (60in. - 78in.)	$10,000	EA.	1.0	$10,000
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$1,617,834
Construction Contingencies (25%)				$404,458
TOTAL CONSTRUCTION				**$2,022,292**
Design (15%)				**$303,344**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,100 cfs Flood Protection)

Revised: 4/2/09

Reach 8a (Old Oakland Road to Upstream Limit of Golf Course)

Alternative E - 0.035% Longitudinal Slope

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$101,115**
Inspection (15%)				**$303,344**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	0.0	$0
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	0.0	$0
Commercial (creek)	$5,000	ACRE	0.0	$0
Commercial (relocate on site)	$500,000	EA.	0.0	$0
Public (partial)	$1,000,000	ACRE	0.9	$860,224
Public (creek)	$5,000	ACRE	11.5	$57,492
Public (relocate on site)	$500,000	EA.	0.0	$0
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$917,716**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	9.0	$1,796,996
Revegetation (off-site)	$200,000	ACRE	18.0	$3,593,992
Revegetation right-of-way (off-site)	$1,000,000	ACRE	18.0	$17,969,960
MITIGATION COSTS				**$23,360,948**
TOTAL COSTS				**$27,008,758**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,100 cfs Flood Protection)

Revised: 4/2/09

Reach 8b (Upstream Limit of Golf Course to Berryessa Road)

Alternative E - 0.035% Longitudinal Slope

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	11.0	$549,466
Vegetation demolition	$10,000	ACRE	5.3	$53,010
Building demolition	$10,000	ACRE	0.3	$3,305
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	0.0	$0
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	54,034.7	$1,080,693
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	0.0	$0
Levee Construction				
Levee	$50	C.Y.	48,682.3	$2,434,114
Bridges and Culverts				
Bridge Removal	$100,000	EA.	0.0	$0
District Cost To Replace Bridge	$3,000,000	EA.	0.0	$0
Traffic Control	$100,000	EA.	0.0	$0
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	0.0	$0
Water Main	$100	L.F.	0.0	$0
Outfalls (12in. - 54in.)	$5,000	EA.	2.0	$10,000
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$4,130,589
Construction Contingencies (25%)				$1,032,647
TOTAL CONSTRUCTION				**$5,163,236**
Design (15%)				**$774,485**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,100 cfs Flood Protection)

Revised: 4/2/09

Reach 8b (Upstream Limit of Golf Course to Berryessa Road)

Alternative E - 0.035% Longitudinal Slope

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$258,162**
Inspection (15%)				**$774,485**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	0.0	$0
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	3.2	$3,198,495
Commercial (creek)	$5,000	ACRE	0.0	$0
Commercial (relocate on site)	$500,000	EA.	0.3	$165,252
Public (partial)	$1,000,000	ACRE	0.0	$0
Public (creek)	$5,000	ACRE	0.0	$0
Public (relocate on site)	$500,000	EA.	0.0	$0
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$3,363,747**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	5.3	$1,060,206
Revegetation (off-site)	$200,000	ACRE	10.6	$2,120,411
Revegetation right-of-way (off-site)	$1,000,000	ACRE	10.6	$10,602,057
MITIGATION COSTS				**$13,782,674**
TOTAL COSTS				**$24,116,790**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Revised: 4/2/09

Reach 9 (Berryessa Road to Mabury Road)

Alternative E - 0.035% Longitudinal Slope

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	13.7	$685,863
Vegetation demolition	$10,000	ACRE	8.7	$86,803
Building demolition	$10,000	ACRE	0.4	$4,257
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	0.0	$0
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	159,510.5	$3,190,210
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	0.0	$0
Levee Construction				
Levee	$50	C.Y.	11,642.8	$582,140
Bridges and Culverts				
Bridge Removal	$100,000	EA.	0.0	$0
District Cost To Replace Bridge	$3,000,000	EA.	0.0	$0
Traffic Control	$100,000	EA.	0.0	$0
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	0.0	$0
Water Main	$100	L.F.	200.0	$20,000
Outfalls (12in. - 54in.)	$5,000	EA.	3.0	$15,000
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$4,584,273
Construction Contingencies (25%)				$1,146,068
TOTAL CONSTRUCTION				**$5,730,341**
Design (15%)				**$859,551**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Revised: 4/2/09

Reach 9 (Berryessa Road to Mabury Road)

Alternative E - 0.035% Longitudinal Slope

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$286,517**
Inspection (15%)				**$859,551**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	0.0	$0
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	0.7	$747,825
Commercial (creek)	$5,000	ACRE	1.4	$6,801
Commercial (relocate on site)	$500,000	EA.	0.4	$212,870
Public (partial)	$1,000,000	ACRE	0.0	$0
Public (creek)	$5,000	ACRE	0.0	$0
Public (relocate on site)	$500,000	EA.	0.0	$0
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$967,496**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	8.7	$1,736,056
Revegetation (off-site)	$200,000	ACRE	17.4	$3,472,112
Revegetation right-of-way (off-site)	$1,000,000	ACRE	17.4	$17,360,558
MITIGATION COSTS				**$22,568,725**
TOTAL COSTS				**$31,272,182**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Revised: 4/2/09

Reach 10 (Mabury Road to Hwy 101)

Alternative E - 0.035% Longitudinal Slope

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	6.4	$321,505
Vegetation demolition	$10,000	ACRE	3.7	$36,673
Building demolition	$10,000	ACRE	0.0	$0
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	0.0	$0
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	80,453.1	$1,609,061
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	361.7	$361,650
Levee Construction				
Levee	$50	C.Y.	0.0	$0
Bridges and Culverts				
Bridge Removal	$100,000	EA.	0.0	$0
District Cost To Replace Bridge	$3,000,000	EA.	0.0	$0
Traffic Control	$100,000	EA.	0.0	$0
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	0.0	$0
Water Main	$100	L.F.	0.0	$0
Outfalls (12in. - 54in.)	$5,000	EA.	3.0	$15,000
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$2,343,890
Construction Contingencies (25%)				$585,973
TOTAL CONSTRUCTION				**$2,929,863**
Design (15%)				**$439,479**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Revised: 4/2/09

Reach 10 (Mabury Road to Hwy 101)

Alternative E - 0.035% Longitudinal Slope

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$146,493**
Inspection (15%)				**$439,479**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	0.0	$0
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	2.7	$2,703,847
Commercial (creek)	$5,000	ACRE	0.6	$2,791
Commercial (relocate on site)	$500,000	EA.	0.0	$0
Public (partial)	$1,000,000	ACRE	0.0	$0
Public (creek)	$5,000	ACRE	4.0	$20,193
Public (relocate on site)	$500,000	EA.	0.0	$0
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$2,726,831**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	6.4	$1,286,021
Revegetation (off-site)	$200,000	ACRE	12.9	$2,572,041
Revegetation right-of-way (off-site)	$1,000,000	ACRE	12.9	$12,860,205
MITIGATION COSTS				**$16,718,267**
TOTAL COSTS				**$23,400,412**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Revised: 4/2/09

Reach 11a (Hwy 101 to Lower Silver Creek)

Alternative E - 0.035% Longitudinal Slope

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	10.2	$511,417
Vegetation demolition	$10,000	ACRE	8.1	$80,821
Building demolition	$10,000	ACRE	0.0	$0
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	0.0	$0
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	62,355.8	$1,247,116
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	0.0	$0
Levee Construction				
Levee	$50	C.Y.	25,322.6	$1,266,130
Bridges and Culverts				
Bridge Removal	$100,000	EA.	0.0	$0
District Cost To Replace Bridge	$3,000,000	EA.	0.0	$0
Traffic Control	$100,000	EA.	0.0	$0
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	0.0	$0
Water Main	$100	L.F.	0.0	$0
Outfalls (12in. - 54in.)	$5,000	EA.	1.0	$5,000
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$3,110,485
Construction Contingencies (25%)				$777,621
TOTAL CONSTRUCTION				**$3,888,106**
Design (15%)				**$583,216**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Revised: 4/2/09

Reach 11a (Hwy 101 to Lower Silver Creek)

Alternative E - 0.035% Longitudinal Slope

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$194,405**
Inspection (15%)				**$583,216**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	0.0	$0
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	0.0	$0
Commercial (creek)	$5,000	ACRE	0.0	$0
Commercial (relocate on site)	$500,000	EA.	0.0	$0
Public (partial)	$1,000,000	ACRE	0.0	$0
Public (creek)	$5,000	ACRE	8.2	$41,083
Public (relocate on site)	$500,000	EA.	0.0	$0
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$41,083**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	8.1	$1,616,426
Revegetation (off-site)	$200,000	ACRE	16.2	$3,232,852
Revegetation right-of-way (off-site)	$1,000,000	ACRE	16.2	$16,164,260
MITIGATION COSTS				**$21,013,538**
TOTAL COSTS				**$26,303,564**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Revised: 4/2/09

Reach 11b (Lower Silver Creek to Julian Street)

Alternative E - 0.035% Longitudinal Slope

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	7.8	$392,191
Vegetation demolition	$10,000	ACRE	7.3	$73,332
Building demolition	$10,000	ACRE	0.4	$4,460
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	5.8	$29,158
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	123,665.1	$2,473,302
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	417.7	$417,719
Levee Construction				
Levee	$50	C.Y.	0.0	$0
Bridges and Culverts				
Bridge Removal	$100,000	EA.	0.0	$0
District Cost To Replace Julian St. Bridge	$3,000,000	EA.	0.0	$0
Traffic Control	$100,000	EA.	0.0	$0
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	0.0	$0
Water Main	$100	L.F.	0.0	$0
Outfalls (12in. - 54in.)	$5,000	EA.	6.0	$30,000
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$3,420,161
Construction Contingencies (25%)				$855,040
TOTAL CONSTRUCTION				**$4,275,202**
Design (15%)				**$641,280**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Revised: 4/2/09

Reach 11b (Lower Silver Creek to Julian Street)

Alternative E - 0.035% Longitudinal Slope

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$213,760**
Inspection (15%)				**$641,280**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	6.0	$12,000,000
Residential (partial)	$1,000,000	ACRE	0.5	$533,577
Residential (creek)	$5,000	ACRE	0.4	$1,963
Commercial (partial)	$1,000,000	ACRE	0.0	$0
Commercial (creek)	$5,000	ACRE	0.0	$0
Commercial (relocate on site)	$500,000	EA.	0.0	$0
Public (partial)	$1,000,000	ACRE	1.8	$1,757,576
Public (creek)	$5,000	ACRE	2.0	$10,164
Public (relocate on site)	$500,000	EA.	0.0	$0
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$14,303,280**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	7.3	$1,466,632
Revegetation (off-site)	$200,000	ACRE	14.7	$2,933,263
Revegetation right-of-way (off-site)	$1,000,000	ACRE	14.7	$14,666,317
MITIGATION COSTS				**$19,066,212**
TOTAL COSTS				**$39,141,014**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Revised: 4/2/09

Reach 12 (Julian Street to Santa Clara Street)

Alternative E - 0.035% Longitudinal Slope

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	20.2	$1,008,235
Vegetation demolition	$10,000	ACRE	10.1	$101,189
Building demolition	$10,000	ACRE	3.6	$35,538
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	0.0	$0
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	387,795.2	$7,755,904
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	114.0	$114,014
Levee Construction				
Levee	$50	C.Y.	0.0	$0
Bridges and Culverts				
Bridge Removal	$100,000	EA.	0.0	$0
District Cost To Replace Santa Clara St. Bridge	$3,000,000	EA.	0.0	$0
Traffic Control	$100,000	EA.	0.0	$0
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	280.0	$28,000
Sanitary Sewer Line Relocation	$200	L.F.	0.0	$0
Water Main	$100	L.F.	500.0	$50,000
Outfalls (12in. - 54in.)	$5,000	EA.	3.0	$15,000
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$9,107,881
Construction Contingencies (25%)				$2,276,970
TOTAL CONSTRUCTION				**$11,384,851**
Design (15%)				**$1,707,728**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Revised: 4/2/09

Reach 12 (Julian Street to Santa Clara Street)

Alternative E - 0.035% Longitudinal Slope

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$569,243**
Inspection (15%)				**$1,707,728**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	31.0	$62,000,000
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	0.0	$0
Commercial (creek)	$5,000	ACRE	0.0	$0
Commercial (relocate on site)	$500,000	EA.	0.0	$0
Public (partial)	$1,000,000	ACRE	7.4	$7,441,303
Public (creek)	$5,000	ACRE	2.4	$12,094
Public (relocate on site)	$500,000	EA.	1.8	$894,537
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$70,347,934**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	10.1	$2,023,773
Revegetation (off-site)	$200,000	ACRE	20.2	$4,047,546
Revegetation right-of-way (off-site)	$1,000,000	ACRE	20.2	$20,237,729
MITIGATION COSTS				**$26,309,048**
TOTAL COSTS				**$112,026,530**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Revised: 4/2/09

Reach 13 (Santa Clara Street to William Street)

Alternative E - 0.035% Longitudinal Slope

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	27.0	$1,351,078
Vegetation demolition	$10,000	ACRE	15.7	$157,373
Building demolition	$10,000	ACRE	6.7	$66,899
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	0.0	$0
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	622,275.5	$12,445,510
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	0.0	$0
Levee Construction				
Levee	$50	C.Y.	2,647.6	$132,381
Bridges and Culverts				
Bridge Removal	$100,000	EA.	0.0	$0
District Cost To Replace San Antonio and William St	$3,000,000	EA.	0.0	$0
Traffic Control	$100,000	EA.	0.0	$0
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	500.0	$100,000
Water Main	$100	L.F.	0.0	$0
Outfalls (12in. - 54in.)	$5,000	EA.	6.0	$30,000
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$14,283,241
Construction Contingencies (25%)				$3,570,810
TOTAL CONSTRUCTION				**$17,854,051**
Design (15%)				**$2,678,108**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Revised: 4/2/09

Reach 13 (Santa Clara Street to William Street)

Alternative E - 0.035% Longitudinal Slope

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$892,703**
Inspection (15%)				**$2,678,108**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	84.0	$168,000,000
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	0.0	$0
Commercial (creek)	$5,000	ACRE	0.0	$0
Commercial (relocate on site)	$500,000	EA.	0.0	$0
Public (partial)	$1,000,000	ACRE	2.3	$2,295,359
Public (creek)	$5,000	ACRE	0.0	$0
Public (relocate on site)	$500,000	EA.	0.0	$0
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$170,295,359**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	15.7	$3,147,461
Revegetation (off-site)	$200,000	ACRE	31.5	$6,294,922
Revegetation right-of-way (off-site)	$1,000,000	ACRE	31.5	$31,474,608
MITIGATION COSTS				**$40,916,990**
TOTAL COSTS				**$235,315,318**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Revised: 4/2/09

Reach 14 (William Street to Hwy 280)

Alternative E - 0.035% Longitudinal Slope

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	14.9	$744,546
Vegetation demolition	$10,000	ACRE	9.3	$92,915
Building demolition	$10,000	ACRE	0.0	$0
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	0.0	$0
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	151,390.3	$3,027,806
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	0.0	$0
Levee Construction				
Levee	$50	C.Y.	39,855.9	$1,992,794
Bridges and Culverts				
Bridge Removal	$100,000	EA.	0.0	$0
District Cost To Replace Bridge	$3,000,000	EA.	0.0	$0
Traffic Control	$100,000	EA.	0.0	$0
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	0.0	$0
Water Main	$100	L.F.	0.0	$0
Outfalls (12in. - 54in.)	$5,000	EA.	4.0	$20,000
Outfalls (60in. - 78in.)	$10,000	EA.	1.0	$10,000
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$5,888,061
Construction Contingencies (25%)				$1,472,015
TOTAL CONSTRUCTION				**$7,360,076**
Design (15%)				**$1,104,011**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Revised: 4/2/09

Reach 14 (William Street to Hwy 280)

Alternative E - 0.035% Longitudinal Slope

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$368,004**
Inspection (15%)				**$1,104,011**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	2.0	$4,000,000
Residential (partial)	$1,000,000	ACRE	0.1	$72,304
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	0.0	$0
Commercial (creek)	$5,000	ACRE	0.0	$0
Commercial (relocate on site)	$500,000	EA.	0.0	$0
Public (partial)	$1,000,000	ACRE	8.2	$8,248,429
Public (creek)	$5,000	ACRE	6.1	$30,687
Public (relocate on site)	$500,000	EA.	0.0	$0
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$12,351,419**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	9.3	$1,858,298
Revegetation (off-site)	$200,000	ACRE	18.6	$3,716,595
Revegetation right-of-way (off-site)	$1,000,000	ACRE	18.6	$18,582,976
MITIGATION COSTS				**$24,157,868**
TOTAL COSTS				**$46,445,390**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (One Percent Flood Protection)

Revised: 3/14/08

Reaches 4-14 (Montague Expressway to Hwy 280)

Alternative F - 0.035% Longitudinal Slope

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	132.3	$6,616,530
Vegetation demolition	$10,000	ACRE	83.1	$831,119
Building demolition	$10,000	ACRE	11.4	$114,460
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	5.8	$29,158
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	1,899,994.4	$37,999,888
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	8,509.0	$8,509,041
Levee Construction				
Levee	$50	C.Y.	97,471.4	$4,873,571
Bridges and Culverts				
Bridge Removal	$100,000	EA.	1.0	$100,000
District Cost To Replace Santa Clara St. Bridge	$3,000,000	EA.	1.0	$3,000,000
Traffic Control	$100,000	EA.	1.0	$100,000
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	2,198.2	$439,642
Water Main	$100	L.F.	700.0	$70,000
Outfalls (12in. - 54in.)	$5,000	EA.	22.0	$110,000
Outfalls (60in. - 78in.)	$10,000	EA.	1.0	$10,000
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$62,803,409
Construction Contingencies (25%)				$15,700,852
TOTAL CONSTRUCTION				**$78,504,261**

Revised: 3/14/08

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (One Percent Flood Protection)

Reaches 4-14 (Montague Expressway to Hwy 280)

Alternative F - 0.035% Longitudinal Slope

Item	Unit Cost	Unit	Quantity	Amount
Design (15%)				**$11,775,639**
Geotechnical (5%)				**$3,925,213**
Inspection (15%)				**$11,775,639**
				$105,980,752
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	123.0	$246,000,000
Residential (partial)	$1,000,000	ACRE	0.6	$605,881
Residential (creek)	$5,000	ACRE	0.4	$1,963
Commercial (partial)	$1,000,000	ACRE	6.7	$6,650,166
Commercial (creek)	$5,000	ACRE	3.1	$15,668
Commercial (relocate on site)	$500,000	EA.	0.8	$378,122
Public (partial)	$1,000,000	ACRE	23.3	$23,300,210
Public (creek)	$5,000	ACRE	30.3	$151,742
Public (relocate on site)	$500,000	EA.	1.8	$894,537
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS			190.0	**$277,998,289**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	83.1	$16,622,384
Revegetation (off-site)	$200,000	ACRE	166.2	$33,244,767
Property acquisition for off-site revegetation	$1,000,000	ACRE	166.2	$166,223,836
MITIGATION COSTS				**$216,090,986**
TOTAL COSTS				**$600,070,028**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,100 cfs Flood Protection)

Revised: 3/14/08

Reaches 4 & 5 (Montague Expressway to Charcot Avenue)

Alternative F - 0.035% Longitudinal Slope

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	2.5	$123,223
Vegetation demolition	$10,000	ACRE	0.0	$0
Building demolition	$10,000	ACRE	0.0	$0
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	0.0	$0
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	0.0	$0
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	7,301.6	$7,301,566
Levee Construction				
Levee	$50	C.Y.	0.0	$0
Bridges and Culverts				
Bridge Removal	$100,000	EA.	1.0	$100,000
District Cost To Replace Charcot Ave. Bridge	$3,000,000	EA.	1.0	$3,000,000
Traffic Control	$100,000	EA.	1.0	$100,000
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	0.0	$0
Water Main	$100	L.F.	0.0	$0
Outfalls (12in. - 54in.)	$5,000	EA.	0.0	$0
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$10,624,790
Construction Contingencies (25%)				$2,656,197
TOTAL CONSTRUCTION				**$13,280,987**
Design (15%)				**$1,992,148**

Revised: 3/14/08

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,100 cfs Flood Protection)

Reaches 4 & 5 (Montague Expressway to Charcot Avenue)

Alternative F - 0.035% Longitudinal Slope

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$664,049**
Inspection (15%)				**$1,992,148**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	0.0	$0
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	0.0	$0
Commercial (creek)	$5,000	ACRE	0.0	$0
Commercial (relocate on site)	$500,000	EA.	0.0	$0
Public (partial)	$1,000,000	ACRE	0.0	$0
Public (creek)	$5,000	ACRE	0.0	$0
Public (relocate on site)		EA.	0.0	$0
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$0**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	0.0	$0
Revegetation (off-site)	$200,000	ACRE	0.0	$0
Revegetation right-of-way (off-site)	$1,000,000	ACRE	0.0	$0
MITIGATION COSTS				**$0**
TOTAL COSTS				**$17,929,332**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,100 cfs Flood Protection)

Revised: 3/14/08

Reaches 6 & 7 (Interstate 880 to Old Oakland)

Alternative F - 0.035% Longitudinal Slope

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	7.8	$391,290
Vegetation demolition	$10,000	ACRE	5.6	$56,231
Building demolition	$10,000	ACRE	0.0	$0
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	0.0	$0
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	59,919.4	$1,198,387
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	521.7	$521,678
Levee Construction				
Levee	$50	C.Y.	10,128.2	$506,412
Bridges and Culverts				
Bridge Removal	$100,000	EA.	0.0	$0
District Cost To Replace _ Bridge	$3,000,000	EA.	0.0	$0
Traffic Control	$100,000	EA.	0.0	$0
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	1,698.2	$339,642
Water Main	$100	L.F.	0.0	$0
Outfalls (12in. - 54in.)	$5,000	EA.	1.0	$5,000
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$3,018,640
Construction Contingencies (25%)				$754,660
TOTAL CONSTRUCTION				**$3,773,300**
Design (15%)				**$565,995**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,100 cfs Flood Protection)

Reaches 6 & 7 (Interstate 880 to Old Oakland)

Alternative F - 0.035% Longitudinal Slope

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$188,665**
Inspection (15%)				**$565,995**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	0.0	$0
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	0.0	$0
Commercial (creek)	$5,000	ACRE	1.2	$6,075
Commercial (relocate on site)	$500,000	EA.	0.0	$0
Public (partial)	$1,000,000	ACRE	2.7	$2,697,320
Public (creek)	$5,000	ACRE	0.0	$0
Public (relocate on site)		EA.	0.0	$0
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$2,703,395**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	5.6	$1,124,612
Revegetation (off-site)	$200,000	ACRE	11.2	$2,249,224
Revegetation right-of-way (off-site)	$1,000,000	ACRE	11.2	$11,246,120
MITIGATION COSTS				**$14,619,956**
TOTAL COSTS				**$22,417,306**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,100 cfs Flood Protection)

Revised: 3/14/08

Reach 8a (Oakland Road to upstream limit of golf course)

Alternative F - 0.035% Longitudinal Slope

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	10.8	$537,715
Vegetation demolition	$10,000	ACRE	9.3	$92,773
Building demolition	$10,000	ACRE	0.0	$0
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	0.0	$0
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	103,857.5	$2,077,150
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	0.0	$0
Levee Construction				
Levee	$50	C.Y.	1,892.9	$94,646
Bridges and Culverts				
Bridge Removal	$100,000	EA.	0.0	$0
District Cost To Replace _ Bridge	$3,000,000	EA.	0.0	$0
Traffic Control	$100,000	EA.	0.0	$0
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	0.0	$0
Water Main	$100	L.F.	0.0	$0
Outfalls (12in. - 54in.)	$5,000	EA.	5.0	$25,000
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$2,827,285
Construction Contingencies (25%)				$706,821
TOTAL CONSTRUCTION				**$3,534,106**
Design (15%)				**$530,116**

Revised: 3/14/08

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,100 cfs Flood Protection)

Reach 8a (Oakland Road to upstream limit of golf course)

Alternative F - 0.035% Longitudinal Slope

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$176,705**
Inspection (15%)				**$530,116**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	0.0	$0
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	0.0	$0
Commercial (creek)	$5,000	ACRE	0.0	$0
Commercial (relocate on site)	$500,000	EA.	0.0	$0
Public (partial)	$1,000,000	ACRE	0.9	$860,224
Public (creek)	$5,000	ACRE	7.5	$37,521
Public (relocate on site)		EA.	0.0	$0
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$897,745**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	9.3	$1,855,459
Revegetation (off-site)	$200,000	ACRE	18.6	$3,710,917
Revegetation right-of-way (off-site)	$1,000,000	ACRE	18.6	$18,554,587
MITIGATION COSTS				**$24,120,964**
TOTAL COSTS				**$29,789,751**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,100 cfs Flood Protection)

Revised: 3/14/08

Reach 8b (upstream limit of golf course to Berryessa Road)

Alternative F - 0.035% Longitudinal Slope

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	11.0	$549,466
Vegetation demolition	$10,000	ACRE	5.3	$53,010
Building demolition	$10,000	ACRE	0.3	$3,305
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	0.0	$0
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	148,772.1	$2,975,441
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	0.0	$0
Levee Construction				
Levee	$50	C.Y.	16,966.4	$848,321
Bridges and Culverts				
Bridge Removal	$100,000	EA.	0.0	$0
District Cost To Replace _ Bridge	$3,000,000	EA.	0.0	$0
Traffic Control	$100,000	EA.	0.0	$0
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	0.0	$0
Water Main	$100	L.F.	0.0	$0
Outfalls (12in. - 54in.)	$5,000	EA.	2.0	$10,000
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$4,439,544
Construction Contingencies (25%)				$1,109,886
TOTAL CONSTRUCTION				**$5,549,430**
Design (15%)				**$832,414**

Revised: 3/14/08

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,100 cfs Flood Protection)

Reach 8b (upstream limit of golf course to Berryessa Road)

Alternative F - 0.035% Longitudinal Slope

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$277,471**
Inspection (15%)				**$832,414**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	0.0	$0
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	3.2	$3,198,495
Commercial (creek)	$5,000	ACRE	0.0	$0
Commercial (relocate on site)	$500,000	EA.	0.3	$165,252
Public (partial)	$1,000,000	ACRE	0.0	$0
Public (creek)	$5,000	ACRE	0.0	$0
Public (relocate on site)		EA.	0.0	$0
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$3,363,747**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	5.3	$1,060,206
Revegetation (off-site)	$200,000	ACRE	10.6	$2,120,411
Revegetation right-of-way (off-site)	$1,000,000	ACRE	10.6	$10,602,057
MITIGATION COSTS				**$13,782,674**
TOTAL COSTS				**$24,638,151**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Revised: 3/14/08

Reach 9 (Berryessa Road to Mabury Road)

Alternative F - 0.035% Longitudinal Slope

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	13.7	$685,863
Vegetation demolition	$10,000	ACRE	8.7	$86,803
Building demolition	$10,000	ACRE	0.4	$4,257
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	0.0	$0
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	159,510.5	$3,190,210
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	0.0	$0
Levee Construction				
Levee	$50	C.Y.	8,897.5	$444,877
Bridges and Culverts				
Bridge Removal	$100,000	EA.	0.0	$0
District Cost To Replace _ Bridge	$3,000,000	EA.	0.0	$0
Traffic Control	$100,000	EA.	0.0	$0
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	0.0	$0
Water Main	$100	L.F.	200.0	$20,000
Outfalls (12in. - 54in.)	$5,000	EA.	0.0	$0
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$4,432,010
Construction Contingencies (25%)				$1,108,002
TOTAL CONSTRUCTION				**$5,540,012**
Design (15%)				**$831,002**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Reach 9 (Berryessa Road to Mabury Road)

Alternative F - 0.035% Longitudinal Slope

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$277,001**
Inspection (15%)				**$831,002**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	0.0	$0
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	0.7	$747,825
Commercial (creek)	$5,000	ACRE	1.4	$6,801
Commercial (relocate on site)	$500,000	EA.	0.4	$212,870
Public (partial)	$1,000,000	ACRE	0.0	$0
Public (creek)	$5,000	ACRE	0.0	$0
Public (relocate on site)		EA.	0.0	$0
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$967,496**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	8.7	$1,736,056
Revegetation (off-site)	$200,000	ACRE	17.4	$3,472,112
Revegetation right-of-way (off-site)	$1,000,000	ACRE	17.4	$17,360,558
MITIGATION COSTS				**$22,568,725**
TOTAL COSTS				**$31,015,238**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Revised: 3/14/08

Reach 10 (Mabury Road to Hwy 101)

Alternative F - 0.035% Longitudinal Slope

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	6.4	$321,505
Vegetation demolition	$10,000	ACRE	3.7	$36,673
Building demolition	$10,000	ACRE	0.0	$0
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	0.0	$0
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	80,453.1	$1,609,061
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	266.7	$266,701
Levee Construction				
Levee	$50	C.Y.	0.0	$0
Bridges and Culverts				
Bridge Removal	$100,000	EA.	0.0	$0
District Cost To Replace _ Bridge	$3,000,000	EA.	0.0	$0
Traffic Control	$100,000	EA.	0.0	$0
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	0.0	$0
Water Main	$100	L.F.	0.0	$0
Outfalls (12in. - 54in.)	$5,000	EA.	1.0	$5,000
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$2,238,941
Construction Contingencies (25%)				$559,735
TOTAL CONSTRUCTION				**$2,798,677**
Design (15%)				**$419,801**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Reach 10 (Mabury Road to Hwy 101)

Alternative F - 0.035% Longitudinal Slope

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$139,934**
Inspection (15%)				**$419,801**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	0.0	$0
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	2.7	$2,703,847
Commercial (creek)	$5,000	ACRE	0.6	$2,791
Commercial (relocate on site)	$500,000	EA.	0.0	$0
Public (partial)	$1,000,000	ACRE	0.0	$0
Public (creek)	$5,000	ACRE	4.0	$20,193
Public (relocate on site)		EA.	0.0	$0
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$2,726,831**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	3.7	$733,462
Revegetation (off-site)	$200,000	ACRE	7.3	$1,466,925
Revegetation right-of-way (off-site)	$1,000,000	ACRE	7.3	$7,334,624
MITIGATION COSTS				**$9,535,012**
TOTAL COSTS				**$16,040,056**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Revised: 3/14/08

Reach 11a (Hwy 101 to Lower Silver Creek)

Alternative F - 0.035% Longitudinal Slope

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	10.2	$511,417
Vegetation demolition	$10,000	ACRE	8.1	$80,821
Building demolition	$10,000	ACRE	0.0	$0
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	0.0	$0
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	62,355.8	$1,247,116
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	0.0	$0
Levee Construction				
Levee	$50	C.Y.	24,455.9	$1,222,794
Bridges and Culverts				
Bridge Removal	$100,000	EA.	0.0	$0
District Cost To Replace _ Bridge	$3,000,000	EA.	0.0	$0
Traffic Control	$100,000	EA.	0.0	$0
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	0.0	$0
Water Main	$100	L.F.	0.0	$0
Outfalls (12in. - 54in.)	$5,000	EA.	0.0	$0
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$3,062,149
Construction Contingencies (25%)				$765,537
TOTAL CONSTRUCTION				**$3,827,686**
Design (15%)				**$574,153**

Revised: 3/14/08

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Reach 11a (Hwy 101 to Lower Silver Creek)

Alternative F - 0.035% Longitudinal Slope

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$191,384**
Inspection (15%)				**$574,153**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	0.0	$0
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	0.0	$0
Commercial (creek)	$5,000	ACRE	0.0	$0
Commercial (relocate on site)	$500,000	EA.	0.0	$0
Public (partial)	$1,000,000	ACRE	0.0	$0
Public (creek)	$5,000	ACRE	8.2	$41,083
Public (relocate on site)		EA.	0.0	$0
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$41,083**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	8.1	$1,616,426
Revegetation (off-site)	$200,000	ACRE	16.2	$3,232,852
Revegetation right-of-way (off-site)	$1,000,000	ACRE	16.2	$16,164,260
MITIGATION COSTS				**$21,013,538**
TOTAL COSTS				**$26,221,997**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Revised: 3/14/08

Reach 11b (Lower Silver Creek to Julian Street)

Alternative F - 0.035% Longitudinal Slope

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	7.8	$392,191
Vegetation demolition	$10,000	ACRE	7.3	$73,332
Building demolition	$10,000	ACRE	0.4	$4,460
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	5.8	$29,158
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	123,665.1	$2,473,302
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	311.1	$311,093
Levee Construction				
Levee	$50	C.Y.	0.0	$0
Bridges and Culverts				
Bridge Removal	$100,000	EA.	0.0	$0
District Cost To Replace Julian St. Bridge	$3,000,000	EA.	0.0	$0
Traffic Control	$100,000	EA.	0.0	$0
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	0.0	$0
Water Main	$100	L.F.	0.0	$0
Outfalls (12in. - 54in.)	$5,000	EA.	3.0	$15,000
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$3,298,535
Construction Contingencies (25%)				$824,634
TOTAL CONSTRUCTION				**$4,123,169**
Design (15%)				**$618,475**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Reach 11b (Lower Silver Creek to Julian Street)

Alternative F - 0.035% Longitudinal Slope

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$206,158**
Inspection (15%)				**$618,475**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	6.0	$12,000,000
Residential (partial)	$1,000,000	ACRE	0.5	$533,577
Residential (creek)	$5,000	ACRE	0.4	$1,963
Commercial (partial)	$1,000,000	ACRE	0.0	$0
Commercial (creek)	$5,000	ACRE	0.0	$0
Commercial (relocate on site)	$500,000	EA.	0.0	$0
Public (partial)	$1,000,000	ACRE	1.8	$1,757,576
Public (creek)	$5,000	ACRE	2.0	$10,164
Public (relocate on site)		EA.	0.0	$0
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$14,303,280**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	7.3	$1,466,632
Revegetation (off-site)	$200,000	ACRE	14.7	$2,933,263
Revegetation right-of-way (off-site)	$1,000,000	ACRE	14.7	$14,666,317
MITIGATION COSTS				**$19,066,212**
TOTAL COSTS				**$38,935,771**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Revised: 3/14/08

Reach 12 (Julian Street to Santa Clara Street)

Alternative F - 0.035% Longitudinal Slope

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	20.2	$1,008,235
Vegetation demolition	$10,000	ACRE	10.1	$101,189
Building demolition	$10,000	ACRE	3.6	$35,538
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	0.0	$0
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	387,795.2	$7,755,904
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	108.0	$108,002
Levee Construction				
Levee	$50	C.Y.	0.0	$0
Bridges and Culverts				
Bridge Removal	$100,000	EA.	0.0	$0
District Cost To Replace Santa Clara St. Bridge	$3,000,000	EA.	0.0	$0
Traffic Control	$100,000	EA.	0.0	$0
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	0.0	$0
Water Main	$100	L.F.	500.0	$50,000
Outfalls (12in. - 54in.)	$5,000	EA.	2.0	$10,000
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$9,068,868
Construction Contingencies (25%)				$2,267,217
TOTAL CONSTRUCTION				**$11,336,085**
Design (15%)				**$1,700,413**

Revised: 3/14/08

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Reach 12 (Julian Street to Santa Clara Street)

Alternative F - 0.035% Longitudinal Slope

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$566,804**
Inspection (15%)				**$1,700,413**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	31.0	$62,000,000
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	0.0	$0
Commercial (creek)	$5,000	ACRE	0.0	$0
Commercial (relocate on site)	$500,000	EA.	0.0	$0
Public (partial)	$1,000,000	ACRE	7.4	$7,441,303
Public (creek)	$5,000	ACRE	2.4	$12,094
Public (relocate on site)		EA.	1.8	$2
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$69,453,399**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	10.1	$2,023,773
Revegetation (off-site)	$200,000	ACRE	20.2	$4,047,546
Revegetation right-of-way (off-site)	$1,000,000	ACRE	20.2	$20,237,729
MITIGATION COSTS				**$26,309,048**
TOTAL COSTS				**$111,066,161**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Revised: 3/14/08

Reach 13 (Santa Clara Street to William Street)

Alternative F - 0.035% Longitudinal Slope

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	27.0	$1,351,078
Vegetation demolition	$10,000	ACRE	15.7	$157,373
Building demolition	$10,000	ACRE	6.7	$66,899
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	0.0	$0
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	622,275.5	$12,445,510
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	0.0	$0
Levee Construction				
Levee	$50	C.Y.	2,073.0	$103,649
Bridges and Culverts				
Bridge Removal	$100,000	EA.	0.0	$0
District Cost To Replace San Antonio and William St	$3,000,000	EA.	0.0	$0
Traffic Control	$100,000	EA.	0.0	$0
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	500.0	$100,000
Water Main	$100	L.F.	0.0	$0
Outfalls (12in. - 54in.)	$5,000	EA.	4.0	$20,000
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$14,244,508
Construction Contingencies (25%)				$3,561,127
TOTAL CONSTRUCTION				**$17,805,635**
Design (15%)				**$2,670,845**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Reach 13 (Santa Clara Street to William Street)

Alternative F - 0.035% Longitudinal Slope

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$890,282**
Inspection (15%)				**$2,670,845**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	84.0	$168,000,000
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	0.0	$0
Commercial (creek)	$5,000	ACRE	0.0	$0
Commercial (relocate on site)	$500,000	EA.	0.0	$0
Public (partial)	$1,000,000	ACRE	2.3	$2,295,359
Public (creek)	$5,000	ACRE	0.0	$0
Public (relocate on site)		EA.	0.0	$0
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$170,295,359**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	15.7	$3,147,461
Revegetation (off-site)	$200,000	ACRE	31.5	$6,294,922
Revegetation right-of-way (off-site)	$1,000,000	ACRE	31.5	$31,474,608
MITIGATION COSTS				**$40,916,990**
TOTAL COSTS				**$235,249,957**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Revised: 3/14/08

Reach 14 (William Street to Hwy 280)

Alternative F - 0.035% Longitudinal Slope

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	14.9	$744,546
Vegetation demolition	$10,000	ACRE	9.3	$92,915
Building demolition	$10,000	ACRE	0.0	$0
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	0.0	$0
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	151,390.3	$3,027,806
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	0.0	$0
Levee Construction				
Levee	$50	C.Y.	33,057.5	$1,652,873
Bridges and Culverts				
Bridge Removal	$100,000	EA.	0.0	$0
District Cost To Replace _ Bridge	$3,000,000	EA.	0.0	$0
Traffic Control	$100,000	EA.	0.0	$0
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	0.0	$0
Water Main	$100	L.F.	0.0	$0
Outfalls (12in. - 54in.)	$5,000	EA.	4.0	$20,000
Outfalls (60in. - 78in.)	$10,000	EA.	1.0	$10,000
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$5,548,140
Construction Contingencies (25%)				$1,387,035
TOTAL CONSTRUCTION				**$6,935,174**
Design (15%)				**$1,040,276**

Revised: 3/14/08

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Reach 14 (William Street to Hwy 280)

Alternative F - 0.035% Longitudinal Slope

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$346,759**
Inspection (15%)				**$1,040,276**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	2.0	$4,000,000
Residential (partial)	$1,000,000	ACRE	0.1	$72,304
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	0.0	$0
Commercial (creek)	$5,000	ACRE	0.0	$0
Commercial (relocate on site)	$500,000	EA.	0.0	$0
Public (partial)	$1,000,000	ACRE	8.2	$8,248,429
Public (creek)	$5,000	ACRE	6.1	$30,687
Public (relocate on site)		EA.	0.0	$0
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$12,351,419**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	9.3	$1,858,298
Revegetation (off-site)	$200,000	ACRE	18.6	$3,716,595
Revegetation right-of-way (off-site)	$1,000,000	ACRE	18.6	$18,582,976
MITIGATION COSTS				**$24,157,868**
TOTAL COSTS				**$45,871,773**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (One Percent Flood Protection)

Revised: 3/14/08

Reaches 4-14 (Montague Expressway to Hwy 280)

Alternative G - Minimize Real Estate Acquisition

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	66.9	$3,345,134
Vegetation demolition	$10,000	ACRE	10.7	$107,190
Building demolition	$10,000	ACRE	11.3	$113,416
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	11.7	$58,315
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	0.0	$0
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	7,424.1	$7,424,138
Levee Construction				
Levee	$50	C.Y.	844,350.9	$42,217,547
Bridges and Culverts				
Bridge Removal	$100,000	EA.	7.0	$700,000
District Cost To Replace Santa Clara St. Bridge	$3,000,000	EA.	7.0	$21,000,000
Traffic Control	$100,000	EA.	7.0	$700,000
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	1,698.2	$339,642
Water Main	$100	L.F.	700.0	$70,000
Outfalls (12in. - 54in.)	$5,000	EA.	7.0	$35,000
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$76,110,382
Construction Contingencies (25%)				$19,027,595
TOTAL CONSTRUCTION				**$95,137,977**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (One Percent Flood Protection)

Reaches 4-14 (Montague Expressway to Hwy 280)

Alternative G - Minimize Real Estate Acquisition

Item	Unit Cost	Unit	Quantity	Amount
Design (15%)				**$14,270,697**
Geotechnical (5%)				**$4,756,899**
Inspection (15%)				**$14,270,697**
				$128,436,269
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	132.0	$264,000,000
Residential (partial)	$1,000,000	ACRE	0.2	$226,766
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	13.7	$13,660,072
Commercial (creek)	$5,000	ACRE	2.1	$10,358
Commercial (relocate on site)	$500,000	EA.	1.0	$500,000
Public (partial)	$1,000,000	ACRE	20.6	$20,559,063
Public (creek)	$5,000	ACRE	9.2	$45,935
Public (relocate on site)		EA.	4.0	$4
Manufactured homes	$600,000	E.A.	1.0	$600,000
RIGHT-OF-WAY COSTS			183.7	**$299,602,198**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	15.9	$3,189,703
Revegetation (off-site)	$200,000	ACRE	31.9	$6,379,407
Property acquisition for off-site revegetation	$1,000,000	ACRE	31.9	$31,897,034
MITIGATION COSTS				**$41,466,145**
TOTAL COSTS				**$469,504,612**

Revised: 3/14/08

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,100 cfs Flood Protection)

Reaches 4&5 (Montague Expressway to Interstate 880)

Alternative G - Minimize Real Estate Acquisition

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	2.5	$123,223
Vegetation demolition	$10,000	ACRE	0.0	$0
Building demolition	$10,000	ACRE	0.0	$0
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	0.0	$0
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	0.0	$0
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	6,189.0	$6,188,967
Levee Construction				
Levee	$50	C.Y.	0.0	$0
Bridges and Culverts				
Bridge Removal	$100,000	EA.	1.0	$100,000
District Cost To Replace Charcot Ave. Bridge	$3,000,000	EA.	1.0	$3,000,000
Traffic Control	$100,000	EA.	1.0	$100,000
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	0.0	$0
Water Main	$100	L.F.	0.0	$0
Outfalls (12in. - 54in.)	$5,000	EA.	0.0	$0
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$9,512,190
Construction Contingencies (25%)				$2,378,048
TOTAL CONSTRUCTION				**$11,890,238**
Design (15%)				**$1,783,536**

Revised: 3/14/08

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,100 cfs Flood Protection)

Reaches 4&5 (Montague Expressway to Interstate 880)

Alternative G - Minimize Real Estate Acquisition

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$594,512**
Inspection (15%)				**$1,783,536**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	0.0	$0
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	0.0	$0
Commercial (creek)	$5,000	ACRE	0.0	$0
Commercial (relocate on site)	$500,000	EA.	0.0	$0
Public (partial)	$1,000,000	ACRE	0.0	$0
Public (creek)	$5,000	ACRE	0.0	$0
Public (relocate on site)		EA.	0.0	$0
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$0**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	0.0	$0
Revegetation (off-site)	$200,000	ACRE	0.0	$0
Revegetation right-of-way (off-site)	$1,000,000	ACRE	0.0	$0
MITIGATION COSTS				**$0**
TOTAL COSTS				**$16,051,821**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,100 cfs Flood Protection)

Revised: 3/14/08

Reaches 6&7 (Interstate 880 to Old Oakland Rd.)

Alternative G - Minimize Real Estate Acquisition

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	3.1	$154,636
Vegetation demolition	$10,000	ACRE	0.7	$7,000
Building demolition	$10,000	ACRE	0.0	$0
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	0.0	$0
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	0.0	$0
Fill	$10.	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	341.6	$341,633
Levee Construction				
Levee	$50	C.Y.	9,340.5	$467,024
Bridges and Culverts				
Bridge Removal	$100,000	EA.	0.0	$0
District Cost To Replace _ Bridge	$3,000,000	EA.	0.0	$0
Traffic Control	$100,000	EA.	0.0	$0
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	1,698.2	$339,642
Water Main	$100	L.F.	0.0	$0
Outfalls (12in. - 54in.)	$5,000	EA.	1.0	$5,000
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$1,314,934
Construction Contingencies (25%)				$328,734
TOTAL CONSTRUCTION				**$1,643,668**
Design (15%)				**$246,550**

Revised: 3/14/08

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,100 cfs Flood Protection)

Reaches 6&7 (Interstate 880 to Old Oakland Rd.)

Alternative G - Minimize Real Estate Acquisition

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$82,183**
Inspection (15%)				**$246,550**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	0.0	$0
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	0.4	$362,830
Commercial (creek)	$5,000	ACRE	1.3	$6,367
Commercial (relocate on site)	$500,000	EA.	0.0	$0
Public (partial)	$1,000,000	ACRE	0.0	$0
Public (creek)	$5,000	ACRE	0.0	$0
Public (relocate on site)		EA.	0.0	$0
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$369,197**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	0.7	$139,990
Revegetation (off-site)	$200,000	ACRE	1.4	$279,981
Revegetation right-of-way (off-site)	$1,000,000	ACRE	1.4	$1,399,905
MITIGATION COSTS				**$1,819,876**
TOTAL COSTS				**$4,408,024**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,100 cfs Flood Protection)

Revised: 3/14/08

Reach 8a (Oakland Road to upstream limit of golf course)

Alternative G - Minimize Real Estate Acquisition

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	10.5	$523,099
Vegetation demolition	$10,000	ACRE	0.0	$0
Building demolition	$10,000	ACRE	0.0	$0
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	0.0	$0
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	0.0	$0
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	0.0	$0
Levee Construction				
Levee	$50	C.Y.	8,510.6	$425,528
Bridges and Culverts				
Bridge Removal	$100,000	EA.	0.0	$0
District Cost To Replace _ Bridge	$3,000,000	EA.	0.0	$0
Traffic Control	$100,000	EA.	0.0	$0
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	0.0	$0
Water Main	$100	L.F.	0.0	$0
Outfalls (12in. - 54in.)	$5,000	EA.	0.0	$0
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$948,627
Construction Contingencies (25%)				$237,157
TOTAL CONSTRUCTION				**$1,185,784**
Design (15%)				**$177,868**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,100 cfs Flood Protection)

Reach 8a (Oakland Road to upstream limit of golf course)

Alternative G - Minimize Real Estate Acquisition

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$59,289**
Inspection (15%)				**$177,868**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	0.0	$0
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	0.0	$0
Commercial (creek)	$5,000	ACRE	0.0	$0
Commercial (relocate on site)	$500,000	EA.	0.0	$0
Public (partial)	$1,000,000	ACRE	0.9	$860,224
Public (creek)	$5,000	ACRE	0.0	$0
Public (relocate on site)		EA.	0.0	$0
Manufactured homes	$600,000	E.A.	1.0	$600,000
RIGHT-OF-WAY COSTS				**$1,460,224**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	0.0	$0
Revegetation (off-site)	$200,000	ACRE	0.0	$0
Revegetation right-of-way (off-site)	$1,000,000	ACRE	0.0	$0
MITIGATION COSTS				**$0**
TOTAL COSTS				**$3,061,032**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,100 cfs Flood Protection)

Revised: 3/14/08

Reach 8b (upstream limit of golf course to Berryessa Road)

Alternative G - Minimize Real Estate Acquisition

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	7.3	$367,130
Vegetation demolition	$10,000	ACRE	0.0	$0
Building demolition	$10,000	ACRE	0.2	$2,380
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	5.8	$29,158
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	0.0	$0
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	343.4	$343,440
Levee Construction				
Levee	$50	C.Y.	43,085.1	$2,154,256
Bridges and Culverts				
Bridge Removal	$100,000	EA.	0.0	$0
District Cost To Replace _ Bridge	$3,000,000	EA.	0.0	$0
Traffic Control	$100,000	EA.	0.0	$0
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	0.0	$0
Water Main	$100	L.F.	0.0	$0
Outfalls (12in. - 54in.)	$5,000	EA.	0.0	$0
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$2,896,365
Construction Contingencies (25%)				$724,091
TOTAL CONSTRUCTION				**$3,620,456**
Design (15%)				**$543,068**

Revised: 3/14/08

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,100 cfs Flood Protection)

Reach 8b (upstream limit of golf course to Berryessa Road)

Alternative G - Minimize Real Estate Acquisition

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$181,023**
Inspection (15%)				**$543,068**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	0.0	$0
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	2.7	$2,672,175
Commercial (creek)	$5,000	ACRE	0.0	$0
Commercial (relocate on site)	$500,000	EA.	1.0	$500,000
Public (partial)	$1,000,000	ACRE	0.0	$0
Public (creek)	$5,000	ACRE	0.0	$0
Public (relocate on site)		EA.	0.0	$0
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$3,172,175**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	0.0	$0
Revegetation (off-site)	$200,000	ACRE	0.0	$0
Revegetation right-of-way (off-site)	$1,000,000	ACRE	0.0	$0
MITIGATION COSTS				**$0**
TOTAL COSTS				**$8,059,791**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Revised: 3/14/08

Reach 9 (Berryessa Road to Mabury Road)

Alternative G - Minimize Real Estate Acquisition

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	7.2	$360,790
Vegetation demolition	$10,000	ACRE	0.7	$7,245
Building demolition	$10,000	ACRE	2.2	$22,177
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	0.0	$0
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	0.0	$0
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	0.0	$0
Levee Construction				
Levee	$50	C.Y.	82,712.0	$4,135,601
Bridges and Culverts				
Bridge Removal	$100,000	EA.	1.0	$100,000
District Cost To Replace Maybury Bridge	$3,000,000	EA.	1.0	$3,000,000
Traffic Control	$100,000	EA.	1.0	$100,000
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	0.0	$0
Water Main	$100	L.F.	200.0	$20,000
Outfalls (12in. - 54in.)	$5,000	EA.	0.0	$0
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$7,745,814
Construction Contingencies (25%)				$1,936,453
TOTAL CONSTRUCTION				**$9,682,267**
Design (15%)				**$1,452,340**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Reach 9 (Berryessa Road to Mabury Road)

Alternative G - Minimize Real Estate Acquisition

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$484,113**
Inspection (15%)				**$1,452,340**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	0.0	$0
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	8.9	$8,856,451
Commercial (creek)	$5,000	ACRE	0.2	$1,072
Commercial (relocate on site)	$500,000	EA.	0.0	$0
Public (partial)	$1,000,000	ACRE	0.0	$0
Public (creek)	$5,000	ACRE	0.0	$0
Public (relocate on site)		EA.	0.0	$0
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$8,857,523**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	0.7	$144,907
Revegetation (off-site)	$200,000	ACRE	1.4	$289,813
Revegetation right-of-way (off-site)	$1,000,000	ACRE	1.4	$1,449,067
MITIGATION COSTS				**$1,883,788**
TOTAL COSTS				**$23,812,371**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Revised: 3/14/08

Reach 10 (Mabury Road to Hwy 101)

Alternative G - Minimize Real Estate Acquisition

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	0.9	$45,302
Vegetation demolition	$10,000	ACRE	0.0	$0
Building demolition	$10,000	ACRE	1.0	$10,000
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	0.0	$0
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	0.0	$0
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	0.0	$0
Levee Construction				
Levee	$50	C.Y.	55,019.4	$2,750,970
Bridges and Culverts				
Bridge Removal	$100,000	EA.	1.0	$100,000
District Cost To Replace HWY-101 Bridge	$3,000,000	EA.	1.0	$3,000,000
Traffic Control	$100,000	EA.	1.0	$100,000
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	0.0	$0
Water Main	$100	L.F.	0.0	$0
Outfalls (12in. - 54in.)	$5,000	EA.	1.0	$5,000
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$6,011,272
Construction Contingencies (25%)				$1,502,818
TOTAL CONSTRUCTION				**$7,514,091**
Design (15%)				**$1,127,114**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Reach 10 (Mabury Road to Hwy 101)

Alternative G - Minimize Real Estate Acquisition

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$375,705**
Inspection (15%)				**$1,127,114**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	0.0	$0
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	1.8	$1,768,616
Commercial (creek)	$5,000	ACRE	0.6	$2,919
Commercial (relocate on site)	$500,000	EA.	0.0	$0
Public (partial)	$1,000,000	ACRE	0.8	$812,021
Public (creek)	$5,000	ACRE	4.2	$21,123
Public (relocate on site)		EA.	0.0	$0
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$2,604,679**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	0.9	$181,210
Revegetation (off-site)	$200,000	ACRE	1.8	$362,420
Revegetation right-of-way (off-site)	$1,000,000	ACRE	1.8	$1,812,099
MITIGATION COSTS				**$2,355,728**
TOTAL COSTS				**$15,104,429**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Revised: 3/14/08

Reach 11a (Hwy 101 to Lower Silver Creek)

Alternative G - Minimize Real Estate Acquisition

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	4.3	$216,176
Vegetation demolition	$10,000	ACRE	0.0	$0
Building demolition	$10,000	ACRE	0.0	$0
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	0.0	$0
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	0.0	$0
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	550.1	$550,097
Levee Construction				
Levee	$50	C.Y.	104,003.0	$5,200,150
Bridges and Culverts				
Bridge Removal	$100,000	EA.	0.0	$0
District Cost To Replace _ Bridge	$3,000,000	EA.	0.0	$0
Traffic Control	$100,000	EA.	0.0	$0
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	0.0	$0
Water Main	$100	L.F.	0.0	$0
Outfalls (12in. - 54in.)	$5,000	EA.	0.0	$0
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$5,966,423
Construction Contingencies (25%)				$1,491,606
TOTAL CONSTRUCTION				**$7,458,029**
Design (15%)				**$1,118,704**

Revised: 3/14/08

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Reach 11a (Hwy 101 to Lower Silver Creek)

Alternative G - Minimize Real Estate Acquisition

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$372,901**
Inspection (15%)				**$1,118,704**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	0.0	$0
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	0.0	$0
Commercial (creek)	$5,000	ACRE	0.0	$0
Commercial (relocate on site)	$500,000	EA.	0.0	$0
Public (partial)	$1,000,000	ACRE	4.4	$4,404,327
Public (creek)	$5,000	ACRE	5.0	$24,812
Public (relocate on site)		EA.	0.0	$0
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$4,429,140**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	4.3	$864,703
Revegetation (off-site)	$200,000	ACRE	8.6	$1,729,407
Revegetation right-of-way (off-site)	$1,000,000	ACRE	8.6	$8,647,034
MITIGATION COSTS				**$11,241,144**
TOTAL COSTS				**$25,738,622**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Revised: 3/14/08

Reach 11b (Lower Silver Creek to Julian Street)

Alternative G - Minimize Real Estate Acquisition

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	5.2	$258,657
Vegetation demolition	$10,000	ACRE	2.1	$21,110
Building demolition	$10,000	ACRE	0.7	$7,430
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	5.8	$29,158
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	0.0	$0
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	0.0	$0
Levee Construction				
Levee	$50	C.Y.	52,495.6	$2,624,780
Bridges and Culverts				
Bridge Removal	$100,000	EA.	1.0	$100,000
District Cost To Replace Julian St. Bridge	$3,000,000	EA.	1.0	$3,000,000
Traffic Control	$100,000	EA.	1.0	$100,000
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	0.0	$0
Water Main	$100	L.F.	0.0	$0
Outfalls (12in. - 54in.)	$5,000	EA.	3.0	$15,000
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$6,156,135
Construction Contingencies (25%)				$1,539,034
TOTAL CONSTRUCTION				**$7,695,169**
Design (15%)				**$1,154,275**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Reach 11b (Lower Silver Creek to Julian Street)

Alternative G - Minimize Real Estate Acquisition

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$384,758**
Inspection (15%)				**$1,154,275**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	22.0	$44,000,000
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	0.0	$0
Commercial (creek)	$5,000	ACRE	0.0	$0
Commercial (relocate on site)	$500,000	EA.	0.0	$0
Public (partial)	$1,000,000	ACRE	1.2	$1,157,498
Public (creek)	$5,000	ACRE	0.0	$0
Public (relocate on site)		EA.	1.0	$1
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$45,157,499**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	2.1	$422,207
Revegetation (off-site)	$200,000	ACRE	4.2	$844,413
Revegetation right-of-way (off-site)	$1,000,000	ACRE	4.2	$4,222,066
MITIGATION COSTS				**$5,488,686**
TOTAL COSTS				**$61,034,663**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Revised: 3/14/08

Reach 12 (Julian Street to Santa Clara Street)

Alternative G - Minimize Real Estate Acquisition

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	6.2	$311,248
Vegetation demolition	$10,000	ACRE	0.9	$9,096
Building demolition	$10,000	ACRE	2.6	$25,625
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	0.0	$0
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	0.0	$0
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	0.0	$0
Levee Construction				
Levee	$50	C.Y.	88,946.2	$4,447,310
Bridges and Culverts				
Bridge Removal	$100,000	EA.	1.0	$100,000
District Cost To Replace Santa Clara St. Bridge	$3,000,000	EA.	1.0	$3,000,000
Traffic Control	$100,000	EA.	1.0	$100,000
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	0.0	$0
Water Main	$100	L.F.	500.0	$50,000
Outfalls (12in. - 54in.)	$5,000	EA.	2.0	$10,000
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$8,053,279
Construction Contingencies (25%)				$2,013,320
TOTAL CONSTRUCTION				**$10,066,598**
Design (15%)				**$1,509,990**

Revised: 3/14/08

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Reach 12 (Julian Street to Santa Clara Street)

Alternative G - Minimize Real Estate Acquisition

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$503,330**
Inspection (15%)				**$1,509,990**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	26.0	$52,000,000
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	0.0	$0
Commercial (creek)	$5,000	ACRE	0.0	$0
Commercial (relocate on site)	$500,000	EA.	0.0	$0
Public (partial)	$1,000,000	ACRE	3.1	$3,131,135
Public (creek)	$5,000	ACRE	0.0	$0
Public (relocate on site)		EA.	1.0	$1
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$55,131,136**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	0.9	$181,917
Revegetation (off-site)	$200,000	ACRE	1.8	$363,834
Revegetation right-of-way (off-site)	$1,000,000	ACRE	1.8	$1,819,168
MITIGATION COSTS				**$2,364,919**
TOTAL COSTS				**$71,085,962**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Revised: 3/14/08

Reach 13 (Santa Clara Street to William Street)

Alternative G - Minimize Real Estate Acquisition

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	8.8	$441,510
Vegetation demolition	$10,000	ACRE	2.6	$25,675
Building demolition	$10,000	ACRE	3.8	$37,839
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	0.0	$0
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	0.0	$0
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	0.0	$0
Levee Construction				
Levee	$50	C.Y.	141,303.6	$7,065,178
Bridges and Culverts				
Bridge Removal	$100,000	EA.	2.0	$200,000
District Cost To Replace San Antonio and William St	$3,000,000	EA.	2.0	$6,000,000
Traffic Control	$100,000	EA.	2.0	$200,000
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	0.0	$0
Water Main	$100	L.F.	0.0	$0
Outfalls (12in. - 54in.)	$5,000	EA.	0.0	$0
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$13,970,202
Construction Contingencies (25%)				$3,492,551
TOTAL CONSTRUCTION				**$17,462,753**
Design (15%)				**$2,619,413**

Revised: 3/14/08

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Reach 13 (Santa Clara Street to William Street)

Alternative G - Minimize Real Estate Acquisition

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$873,138**
Inspection (15%)				**$2,619,413**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	79.0	$158,000,000
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	0.0	$0
Commercial (creek)	$5,000	ACRE	0.0	$0
Commercial (relocate on site)	$500,000	EA.	0.0	$0
Public (partial)	$1,000,000	ACRE	2.5	$2,538,961
Public (creek)	$5,000	ACRE	0.0	$0
Public (relocate on site)		EA.	0.0	$0
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$160,538,961**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	2.6	$513,507
Revegetation (off-site)	$200,000	ACRE	5.1	$1,027,014
Revegetation right-of-way (off-site)	$1,000,000	ACRE	5.1	$5,135,072
MITIGATION COSTS				**$6,675,593**
TOTAL COSTS				**$190,789,271**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Revised: 3/14/08

Reach 14 (William Street to Hwy 280)

Alternative G - Minimize Real Estate Acquisition

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	10.9	$543,363
Vegetation demolition	$10,000	ACRE	3.7	$37,063
Building demolition	$10,000	ACRE	0.8	$7,965
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	0.0	$0
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	0.0	$0
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	0.0	$0
Levee Construction				
Levee	$50	C.Y.	258,935.0	$12,946,749
Bridges and Culverts				
Bridge Removal	$100,000	EA.	0.0	$0
District Cost To Replace _ Bridge	$3,000,000	EA.	0.0	$0
Traffic Control	$100,000	EA.	0.0	$0
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	0.0	$0
Water Main	$100	L.F.	0.0	$0
Outfalls (12in. - 54in.)	$5,000	EA.	0.0	$0
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$13,535,140
Construction Contingencies (25%)				$3,383,785
TOTAL CONSTRUCTION				**$16,918,925**
Design (15%)				**$2,537,839**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Reach 14 (William Street to Hwy 280)

Alternative G - Minimize Real Estate Acquisition

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$845,946**
Inspection (15%)				**$2,537,839**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	5.0	$10,000,000
Residential (partial)	$1,000,000	ACRE	0.2	$226,766
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	0.0	$0
Commercial (creek)	$5,000	ACRE	0.0	$0
Commercial (relocate on site)	$500,000	EA.	0.0	$0
Public (partial)	$1,000,000	ACRE	7.7	$7,654,897
Public (creek)	$5,000	ACRE	0.0	$0
Public (relocate on site)		EA.	2.0	$2
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$17,881,665**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	3.7	$741,262
Revegetation (off-site)	$200,000	ACRE	7.4	$1,482,525
Revegetation right-of-way (off-site)	$1,000,000	ACRE	7.4	$7,412,624
MITIGATION COSTS				**$9,636,411**
TOTAL COSTS				**$50,358,625**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (One Percent Flood Protection)

Revised: 7/29/10

Reaches 4-14 (Montague Expressway to Hwy 280)

Alternative H - Bypass

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	70.9	$3,546,436
Vegetation demolition	$10,000	ACRE	21.9	$218,927
Building demolition	$10,000	ACRE	8.9	$88,878
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	11.7	$58,315
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	215,713.5	$4,314,271
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	7,070.8	$7,070,844
Levee Construction				
Levee	$50	C.Y.	478,010.9	$23,900,543
Bridges and Culverts				
Bridge Removal	$100,000	EA.	5.0	$500,000
District Cost To Replace Santa Clara St. Bridge	$3,000,000	EA.	5.0	$15,000,000
Traffic Control	$100,000	EA.	5.0	$500,000
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	1,698.2	$339,642
Water Main	$100	L.F.	700.0	$70,000
Outfalls (12in. - 54in.)	$5,000	EA.	7.0	$35,000
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$55,642,855
Construction Contingencies (25%)				$13,910,714
CONSTRUCTION				**$69,553,569**

Revised: 7/29/10

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (One Percent Flood Protection)

Reaches 4-14 (Montague Expressway to Hwy 280)

Alternative H - Bypass

Item	Unit Cost	Unit	Quantity	Amount
Design (15%)				**$10,433,035**
Geotechnical (5%)				**$3,477,678**
Inspection (15%)				**$10,433,035**
				$93,897,318
BYPASS COSTS	$20,816	L.F.	5,589	$116,340,624
TOTAL CONSTRUCTION				**$210,237,942**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	129.0	$258,000,000
Residential (partial)	$1,000,000	ACRE	0.2	$226,766
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	17.7	$17,719,044
Commercial (creek)	$5,000	ACRE	0.8	$4,015
Commercial (relocate on site)	$500,000	EA.	0.0	$0
Public (partial)	$1,000,000	ACRE	22.2	$22,239,470
Public (creek)	$5,000	ACRE	8.4	$41,759
Public (relocate on site)	$500,000	EA.	4.0	$2,000,000
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS			182.3	**$300,231,055**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	29.0	$5,806,885
Revegetation (off-site)	$200,000	ACRE	58.1	$11,613,771
Property acquisition for off-site revegetation	$1,000,000	ACRE	58.1	$58,068,853
MITIGATION COSTS				**$75,489,509**
TOTAL COSTS				**$585,958,505**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,100 cfs Flood Protection)

Revised: 3/14/08

Reaches 4 & 5 (Montague Expressway to Interstate 880)

Alternative H - Bypass

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	2.5	$123,223
Vegetation demolition	$10,000	ACRE	0.0	$0
Building demolition	$10,000	ACRE	0.0	$0
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	0.0	$0
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	0.0	$0
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	6,183.3	$6,183,329
Levee Construction				
Levee	$50	C.Y.	0.0	$0
Bridges and Culverts				
Bridge Removal	$100,000	EA.	1.0	$100,000
District Cost To Replace Charcot Ave. Bridge	$3,000,000	EA.	1.0	$3,000,000
Traffic Control	$100,000	EA.	1.0	$100,000
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	0.0	$0
Water Main	$100	L.F.	0.0	$0
Outfalls (12in. - 54in.)	$5,000	EA.	0.0	$0
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$9,506,553
Construction Contingencies (25%)				$2,376,638
TOTAL CONSTRUCTION				**$11,883,191**
Design (15%)				**$1,782,479**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,100 cfs Flood Protection)

Reaches 4 & 5 (Montague Expressway to Interstate 880)

Alternative H - Bypass

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$594,160**
Inspection (15%)				**$1,782,479**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	0.0	$0
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	0.0	$0
Commercial (creek)	$5,000	ACRE	0.0	$0
Commercial (relocate on site)	$500,000	EA.	0.0	$0
Public (partial)	$1,000,000	ACRE	0.0	$0
Public (creek)	$5,000	ACRE	0.0	$0
Public (relocate on site)		EA.	0.0	$0
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$0**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	0.0	$0
Revegetation (off-site)	$200,000	ACRE	0.0	$0
Revegetation right-of-way (off-site)	$1,000,000	ACRE	0.0	$0
MITIGATION COSTS				**$0**
TOTAL COSTS				**$16,042,307**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,100 cfs Flood Protection)

Revised: 3/14/08

Reaches 6 & 7 (Interstate 880 to Old Oakland Rd.)

Alternative H - Bypass

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	11.5	$577,080
Vegetation demolition	$10,000	ACRE	7.5	$74,619
Building demolition	$10,000	ACRE	0.0	$0
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	0.0	$0
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	68,389.0	$1,367,780
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	371.4	$371,423
Levee Construction				
Levee	$50	C.Y.	4,180.0	$208,999
Bridges and Culverts				
Bridge Removal	$100,000	EA.	0.0	$0
District Cost To Replace _ Bridge	$3,000,000	EA.	0.0	$0
Traffic Control	$100,000	EA.	0.0	$0
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	1,698.2	$339,642
Water Main	$100	L.F.	0.0	$0
Outfalls (12in. - 54in.)	$5,000	EA.	1.0	$5,000
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$2,944,543
Construction Contingencies (25%)				$736,136
TOTAL CONSTRUCTION				**$3,680,679**
Design (15%)				**$552,102**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,100 cfs Flood Protection)

Reaches 6 & 7 (Interstate 880 to Old Oakland Rd.)

Alternative H - Bypass

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$184,034**
Inspection (15%)				**$552,102**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	0.0	$0
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	1.3	$1,345,403
Commercial (creek)	$5,000	ACRE	0.0	$0
Commercial (relocate on site)	$500,000	EA.	0.0	$0
Public (partial)	$1,000,000	ACRE	0.8	$756,938
Public (creek)	$5,000	ACRE	0.0	$0
Public (relocate on site)		EA.	0.0	$0
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$2,102,341**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	7.5	$1,492,386
Revegetation (off-site)	$200,000	ACRE	14.9	$2,984,772
Revegetation right-of-way (off-site)	$1,000,000	ACRE	14.9	$14,923,862
MITIGATION COSTS				**$19,401,020**
TOTAL COSTS				**$26,472,279**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,100 cfs Flood Protection)

Revised: 3/14/08

Reach 8a (Oakland Road to upstream limit of golf course)

Alternative H - Bypass

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	1.5	$73,850
Vegetation demolition	$10,000	ACRE	0.0	$0
Building demolition	$10,000	ACRE	0.0	$0
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	0.0	$0
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	0.0	$0
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	0.0	$0
Levee Construction				
Levee	$50	C.Y.	2,782.7	$139,133
Bridges and Culverts				
Bridge Removal	$100,000	EA.	0.0	$0
District Cost To Replace _ Bridge	$3,000,000	EA.	0.0	$0
Traffic Control	$100,000	EA.	0.0	$0
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	0.0	$0
Water Main	$100	L.F.	0.0	$0
Outfalls (12in. - 54in.)	$5,000	EA.	0.0	$0
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$212,984
Construction Contingencies (25%)				$53,246
TOTAL CONSTRUCTION				**$266,229**
Design (15%)				**$39,934**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,100 cfs Flood Protection)

Reach 8a (Oakland Road to upstream limit of golf course)

Alternative H - Bypass

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$13,311**
Inspection (15%)				**$39,934**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	0.0	$0
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	0.0	$0
Commercial (creek)	$5,000	ACRE	0.0	$0
Commercial (relocate on site)	$500,000	EA.	0.0	$0
Public (partial)	$1,000,000	ACRE	0.9	$860,224
Public (creek)	$5,000	ACRE	0.0	$0
Public (relocate on site)		EA.	0.0	$0
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$860,224**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	0.0	$0
Revegetation (off-site)	$200,000	ACRE	0.0	$0
Revegetation right-of-way (off-site)	$1,000,000	ACRE	0.0	$0
MITIGATION COSTS				**$0**
TOTAL COSTS				**$1,219,633**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,100 cfs Flood Protection)

Revised: 3/14/08

Reach 8b (upstream limit of golf course to Berryessa Road)

Alternative H - Bypass

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	7.3	$367,130
Vegetation demolition	$10,000	ACRE	2.0	$19,937
Building demolition	$10,000	ACRE	0.2	$1,514
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	5.8	$29,158
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	56,873.7	$1,137,473
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	178.8	$178,795
Levee Construction				
Levee	$50	C.Y.	33,220.6	$1,661,031
Bridges and Culverts				
Bridge Removal	$100,000	EA.	0.0	$0
District Cost To Replace _ Bridge	$3,000,000	EA.	0.0	$0
Traffic Control	$100,000	EA.	0.0	$0
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	0.0	$0
Water Main	$100	L.F.	0.0	$0
Outfalls (12in. - 54in.)	$5,000	EA.	0.0	$0
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$3,395,037
Construction Contingencies (25%)				$848,759
TOTAL CONSTRUCTION				**$4,243,797**
Design (15%)				**$636,570**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,100 cfs Flood Protection)

Reach 8b (upstream limit of golf course to Berryessa Road)

Alternative H - Bypass

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$212,190**
Inspection (15%)				**$636,570**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	0.0	$0
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	2.9	$2,874,489
Commercial (creek)	$5,000	ACRE	0.0	$0
Commercial (relocate on site)	$500,000	EA.	0.0	$0
Public (partial)	$1,000,000	ACRE	0.0	$0
Public (creek)	$5,000	ACRE	0.0	$0
Public (relocate on site)		EA.	0.0	$0
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$2,874,489**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	2.0	$398,739
Revegetation (off-site)	$200,000	ACRE	4.0	$797,478
Revegetation right-of-way (off-site)	$1,000,000	ACRE	4.0	$3,987,390
MITIGATION COSTS				**$5,183,607**
TOTAL COSTS				**$13,787,221**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Revised: 3/14/08

Reach 9 (Berryessa Road to Mabury Road)

Alternative H - Bypass

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	12.0	$597,893
Vegetation demolition	$10,000	ACRE	3.2	$32,405
Building demolition	$10,000	ACRE	1.8	$18,241
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	0.0	$0
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	70,371.1	$1,407,422
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	0.0	$0
Levee Construction				
Levee	$50	C.Y.	28,037.4	$1,401,870
Bridges and Culverts				
Bridge Removal	$100,000	EA.	0.0	$0
District Cost To Replace Maybury Bridge	$3,000,000	EA.	0.0	$0
Traffic Control	$100,000	EA.	0.0	$0
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	0.0	$0
Water Main	$100	L.F.	200.0	$20,000
Outfalls (12in. - 54in.)	$5,000	EA.	0.0	$0
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$3,477,831
Construction Contingencies (25%)				$869,458
TOTAL CONSTRUCTION				**$4,347,289**
Design (15%)				**$652,093**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Reach 9 (Berryessa Road to Mabury Road)

Alternative H - Bypass

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$217,364**
Inspection (15%)				**$652,093**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	0.0	$0
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	9.8	$9,820,865
Commercial (creek)	$5,000	ACRE	0.2	$1,105
Commercial (relocate on site)	$500,000	EA.	0.0	$0
Public (partial)	$1,000,000	ACRE	0.0	$0
Public (creek)	$5,000	ACRE	0.0	$0
Public (relocate on site)		EA.	0.0	$0
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$9,821,970**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	3.2	$648,094
Revegetation (off-site)	$200,000	ACRE	6.5	$1,296,187
Revegetation right-of-way (off-site)	$1,000,000	ACRE	6.5	$6,480,936
MITIGATION COSTS				**$8,425,216**
TOTAL COSTS				**$24,116,026**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Revised: 3/14/08

Reach 10 (Mabury Road to Hwy 101)

Alternative H - Bypass

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	2.8	$140,911
Vegetation demolition	$10,000	ACRE	0.0	$0
Building demolition	$10,000	ACRE	0.0	$0
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	0.0	$0
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	20,079.8	$401,595
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	0.0	$0
Levee Construction				
Levee	$50	C.Y.	25,098.8	$1,254,938
Bridges and Culverts				
Bridge Removal	$100,000	EA.	0.0	$0
District Cost To Replace HWY-101 Bridge	$3,000,000	EA.	0.0	$0
Traffic Control	$100,000	EA.	0.0	$0
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	0.0	$0
Water Main	$100	L.F.	0.0	$0
Outfalls (12in. - 54in.)	$5,000	EA.	1.0	$5,000
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$1,802,445
Construction Contingencies (25%)				$450,611
TOTAL CONSTRUCTION				**$2,253,056**
Design (15%)				**$337,958**

Revised: 3/14/08

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Reach 10 (Mabury Road to Hwy 101)

Alternative H - Bypass

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$112,653**
Inspection (15%)				**$337,958**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	0.0	$0
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	3.7	$3,678,287
Commercial (creek)	$5,000	ACRE	0.6	$2,911
Commercial (relocate on site)	$500,000	EA.	0.0	$0
Public (partial)	$1,000,000	ACRE	1.7	$1,711,804
Public (creek)	$5,000	ACRE	3.4	$16,947
Public (relocate on site)		EA.	0.0	$0
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$5,409,948**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	2.8	$563,644
Revegetation (off-site)	$200,000	ACRE	5.6	$1,127,288
Revegetation right-of-way (off-site)	$1,000,000	ACRE	5.6	$5,636,442
MITIGATION COSTS				**$7,327,374**
TOTAL COSTS				**$15,778,948**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Revised: 3/14/08

Reach 11a (Hwy 101 to Lower Silver Creek)

Alternative H - Bypass

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	4.3	$216,176
Vegetation demolition	$10,000	ACRE	0.0	$0
Building demolition	$10,000	ACRE	0.0	$0
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	0.0	$0
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	0.0	$0
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	337.3	$337,297
Levee Construction				
Levee	$50	C.Y.	67,165.0	$3,358,251
Bridges and Culverts				
Bridge Removal	$100,000	EA.	0.0	$0
District Cost To Replace _ Bridge	$3,000,000	EA.	0.0	$0
Traffic Control	$100,000	EA.	0.0	$0
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	0.0	$0
Water Main	$100	L.F.	0.0	$0
Outfalls (12in. - 54in.)	$5,000	EA.	0.0	$0
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$3,911,723
Construction Contingencies (25%)				$977,931
TOTAL CONSTRUCTION				**$4,889,654**
Design (15%)				**$733,448**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Reach 11a (Hwy 101 to Lower Silver Creek)

Alternative H - Bypass

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$244,483**
Inspection (15%)				**$733,448**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	0.0	$0
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	0.0	$0
Commercial (creek)	$5,000	ACRE	0.0	$0
Commercial (relocate on site)	$500,000	EA.	0.0	$0
Public (partial)	$1,000,000	ACRE	4.4	$4,404,327
Public (creek)	$5,000	ACRE	5.0	$24,812
Public (relocate on site)		EA.	0.0	$0
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$4,429,140**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	4.3	$864,703
Revegetation (off-site)	$200,000	ACRE	8.6	$1,729,407
Revegetation right-of-way (off-site)	$1,000,000	ACRE	8.6	$8,647,034
MITIGATION COSTS				**$11,241,144**
TOTAL COSTS				**$22,271,316**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Revised: 3/14/08

Reach 11b (Lower Silver Creek to Julian Street)

Alternative H - Bypass

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	5.2	$258,657
Vegetation demolition	$10,000	ACRE	2.1	$21,110
Building demolition	$10,000	ACRE	0.7	$7,430
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	5.8	$29,158
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	0.0	$0
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	0.0	$0
Levee Construction				
Levee	$50	C.Y.	53,248.2	$2,662,411
Bridges and Culverts				
Bridge Removal	$100,000	EA.	1.0	$100,000
District Cost To Replace Julian St. Bridge	$3,000,000	EA.	1.0	$3,000,000
Traffic Control	$100,000	EA.	1.0	$100,000
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	0.0	$0
Water Main	$100	L.F.	0.0	$0
Outfalls (12in. - 54in.)	$5,000	EA.	3.0	$15,000
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$6,193,766
Construction Contingencies (25%)				$1,548,441
TOTAL CONSTRUCTION				**$7,742,207**
Design (15%)				**$1,161,331**

Revised: 3/14/08

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Reach 11b (Lower Silver Creek to Julian Street)

Alternative H - Bypass

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$387,110**
Inspection (15%)				**$1,161,331**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	22.0	$44,000,000
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	0.0	$0
Commercial (creek)	$5,000	ACRE	0.0	$0
Commercial (relocate on site)	$500,000	EA.	0.0	$0
Public (partial)	$1,000,000	ACRE	1.2	$1,157,498
Public (creek)	$5,000	ACRE	0.0	$0
Public (relocate on site)	$500,000	EA.	1.0	$500,000
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$45,657,498**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	2.1	$422,207
Revegetation (off-site)	$200,000	ACRE	4.2	$844,413
Revegetation right-of-way (off-site)	$1,000,000	ACRE	4.2	$4,222,066
MITIGATION COSTS				**$5,488,686**
TOTAL COSTS				**$61,598,164**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Revised: 3/14/08

Reach 12 (Julian Street to Santa Clara Street)

Alternative H - Bypass

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	6.2	$311,248
Vegetation demolition	$10,000	ACRE	0.9	$9,096
Building demolition	$10,000	ACRE	2.6	$25,625
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	0.0	$0
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	0.0	$0
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	0.0	$0
Levee Construction				
Levee	$50	C.Y.	59,056.2	$2,952,812
Bridges and Culverts				
Bridge Removal	$100,000	EA.	1.0	$100,000
District Cost To Replace Santa Clara St. Bridge	$3,000,000	EA.	1.0	$3,000,000
Traffic Control	$100,000	EA.	1.0	$100,000
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	0.0	$0
Water Main	$100	L.F.	500.0	$50,000
Outfalls (12in. - 54in.)	$5,000	EA.	2.0	$10,000
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$6,558,780
Construction Contingencies (25%)				$1,639,695
TOTAL CONSTRUCTION				**$8,198,475**
Design (15%)				**$1,229,771**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Reach 12 (Julian Street to Santa Clara Street)

Alternative H - Bypass

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$409,924**
Inspection (15%)				**$1,229,771**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	26.0	$52,000,000
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	0.0	$0
Commercial (creek)	$5,000	ACRE	0.0	$0
Commercial (relocate on site)	$500,000	EA.	0.0	$0
Public (partial)	$1,000,000	ACRE	3.1	$3,131,135
Public (creek)	$5,000	ACRE	0.0	$0
Public (relocate on site)		EA.	1.0	$1
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$55,131,136**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	0.9	$181,917
Revegetation (off-site)	$200,000	ACRE	1.8	$363,834
Revegetation right-of-way (off-site)	$1,000,000	ACRE	1.8	$1,819,168
MITIGATION COSTS				**$2,364,919**
TOTAL COSTS				**$68,563,996**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Revised: 3/14/08

Reach 13 (Santa Clara Street to William Street)

Alternative H - Bypass

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	6.7	$336,904
Vegetation demolition	$10,000	ACRE	2.5	$24,697
Building demolition	$10,000	ACRE	2.8	$28,104
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	0.0	$0
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	0.0	$0
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	0.0	$0
Levee Construction				
Levee	$50	C.Y.	41,233.1	$2,061,653
Bridges and Culverts				
Bridge Removal	$100,000	EA.	2.0	$200,000
District Cost To Replace San Antonio and William St	$3,000,000	EA.	2.0	$6,000,000
Traffic Control	$100,000	EA.	2.0	$200,000
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	0.0	$0
Water Main	$100	L.F.	0.0	$0
Outfalls (12in. - 54in.)	$5,000	EA.	0.0	$0
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$8,851,357
Construction Contingencies (25%)				$2,212,839
TOTAL CONSTRUCTION				**$11,064,196**
Design (15%)				**$1,659,629**

Revised: 3/14/08

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Reach 13 (Santa Clara Street to William Street)

Alternative H - Bypass

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$553,210**
Inspection (15%)				**$1,659,629**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	76.0	$152,000,000
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	0.0	$0
Commercial (creek)	$5,000	ACRE	0.0	$0
Commercial (relocate on site)	$500,000	EA.	0.0	$0
Public (partial)	$1,000,000	ACRE	2.6	$2,562,647
Public (creek)	$5,000	ACRE	0.0	$0
Public (relocate on site)		EA.	0.0	$0
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$154,562,647**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	2.5	$493,933
Revegetation (off-site)	$200,000	ACRE	4.9	$987,866
Revegetation right-of-way (off-site)	$1,000,000	ACRE	4.9	$4,939,332
MITIGATION COSTS				**$6,421,131**
TOTAL COSTS				**$175,920,443**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Revised: 3/14/08

Reach 14 (William Street to Hwy 280)

Alternative H - Bypass

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	10.9	$543,363
Vegetation demolition	$10,000	ACRE	3.7	$37,063
Building demolition	$10,000	ACRE	0.8	$7,965
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	0.0	$0
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	0.0	$0
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	0.0	$0
Levee Construction				
Levee	$50	C.Y.	163,988.9	$8,199,446
Bridges and Culverts				
Bridge Removal	$100,000	EA.	0.0	$0
District Cost To Replace _ Bridge	$3,000,000	EA.	0.0	$0
Traffic Control	$100,000	EA.	0.0	$0
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	0.0	$0
Water Main	$100	L.F.	0.0	$0
Outfalls (12in. - 54in.)	$5,000	EA.	0.0	$0
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$8,787,837
Construction Contingencies (25%)				$2,196,959
TOTAL CONSTRUCTION				**$10,984,796**
Design (15%)				**$1,647,719**

Revised: 3/14/08

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Reach 14 (William Street to Hwy 280)

Alternative H - Bypass

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$549,240**
Inspection (15%)				**$1,647,719**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	5.0	$10,000,000
Residential (partial)	$1,000,000	ACRE	0.2	$226,766
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	0.0	$0
Commercial (creek)	$5,000	ACRE	0.0	$0
Commercial (relocate on site)	$500,000	EA.	0.0	$0
Public (partial)	$1,000,000	ACRE	7.7	$7,654,897
Public (creek)	$5,000	ACRE	0.0	$0
Public (relocate on site)	$500,000	EA.	2.0	$1,000,000
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$18,881,663**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	3.7	$741,262
Revegetation (off-site)	$200,000	ACRE	7.4	$1,482,525
Revegetation right-of-way (off-site)	$1,000,000	ACRE	7.4	$7,412,624
MITIGATION COSTS				**$9,636,411**
TOTAL COSTS				**$43,347,548**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (One Percent Flood Protection)

Revised: 7/29/10

Reaches 4-14 (Montague Expressway to Hwy 280)

Alternative I - Bypass

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	46.2	$2,310,718
Vegetation demolition	$10,000	ACRE	18.6	$186,061
Building demolition	$10,000	ACRE	2.0	$19,755
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	5.8	$29,158
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	215,713.5	$4,314,271
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	6,733.5	$6,733,547
Levee Construction				
Levee	$50	C.Y.	83,396.4	$4,169,819
Bridges and Culverts				
Bridge Removal	$100,000	EA.	1.0	$100,000
District Cost To Replace Santa Clara St. Bridge	$3,000,000	EA.	1.0	$3,000,000
Traffic Control	$100,000	EA.	1.0	$100,000
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	1,698.2	$339,642
Water Main	$100	L.F.	700.0	$70,000
Outfalls (12in. - 54in.)	$5,000	EA.	4.0	$20,000
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$21,392,971
Construction Contingencies (25%)				$5,348,243
CONSTRUCTION				**$26,741,213**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (One Percent Flood Protection)

Reaches 4-14 (Montague Expressway to Hwy 280)

Alternative I - Bypass

Item	Unit Cost	Unit	Quantity	Amount
Design (15%)				**$4,011,182**
Geotechnical (5%)				**$1,337,061**
Inspection (15%)				**$4,011,182**
				$36,100,638
BYPASS COST				$242,605,342
TOTAL CONSTRUCTION				**$278,705,980**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	14.0	$28,000,000
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	17.2	$17,241,654
Commercial (creek)	$5,000	ACRE	0.8	$4,016
Commercial (relocate on site)	$500,000	EA.	0.0	$0
Public (partial)	$1,000,000	ACRE	8.8	$8,799,288
Public (creek)	$5,000	ACRE	0.0	$0
Public (relocate on site)		EA.	0.0	$0
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS			40.8	**$54,044,958**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	20.7	$4,131,782
Revegetation (off-site)	$200,000	ACRE	41.3	$8,263,563
Property acquisition for off-site revegetation	$1,000,000	ACRE	41.3	$41,317,815
MITIGATION COSTS				**$53,713,160**
TOTAL COSTS				**$386,464,097**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,100 cfs Flood Protection)

Revised: 3/14/08

Reaches 4 & 5 (Montague Expressway to Interstate 880)

Alternative I - Bypass

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	2.5	$123,223
Vegetation demolition	$10,000	ACRE	0.0	$0
Building demolition	$10,000	ACRE	0.0	$0
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	0.0	$0
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	0.0	$0
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	6,183.3	$6,183,329
Levee Construction				
Levee	$50	C.Y.	0.0	$0
Bridges and Culverts				
Bridge Removal	$100,000	EA.	1.0	$100,000
District Cost To Replace Charcot Ave. Bridge	$3,000,000	EA.	1.0	$3,000,000
Traffic Control	$100,000	EA.	1.0	$100,000
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	0.0	$0
Water Main	$100	L.F.	0.0	$0
Outfalls (12in. - 54in.)	$5,000	EA.	0.0	$0
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$9,506,553
Construction Contingencies (25%)				$2,376,638
TOTAL CONSTRUCTION				**$11,883,191**
Design (15%)				**$1,782,479**

Revised: 3/14/08

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,100 cfs Flood Protection)

Reaches 4 & 5 (Montague Expressway to Interstate 880)

Alternative I - Bypass

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$594,160**
Inspection (15%)				**$1,782,479**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	0.0	$0
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	0.0	$0
Commercial (creek)	$5,000	ACRE	0.0	$0
Commercial (relocate on site)	$500,000	EA.	0.0	$0
Public (partial)	$1,000,000	ACRE	0.0	$0
Public (creek)	$5,000	ACRE	0.0	$0
Public (relocate on site)		EA.	0.0	$0
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$0**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	0.0	$0
Revegetation (off-site)	$200,000	ACRE	0.0	$0
Property acquisition for off-site revegetation	$1,000,000	ACRE	0.0	$0
MITIGATION COSTS				**$0**
TOTAL COSTS				**$16,042,307**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,100 cfs Flood Protection)

Revised: 3/14/08

Reaches 6 & 7 (Interstate 880 to Old Oakland Rd.)

Alternative I - Bypass

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	11.5	$577,080
Vegetation demolition	$10,000	ACRE	7.5	$74,619
Building demolition	$10,000	ACRE	0.0	$0
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	0.0	$0
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	68,389.0	$1,367,780
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	371.4	$371,423
Levee Construction				
Levee	$50	C.Y.	4,180.0	$208,999
Bridges and Culverts				
Bridge Removal	$100,000	EA.	0.0	$0
District Cost To Replace _ Bridge	$3,000,000	EA.	0.0	$0
Traffic Control	$100,000	EA.	0.0	$0
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	1,698.2	$339,642
Water Main	$100	L.F.	0.0	$0
Outfalls (12in. - 54in.)	$5,000	EA.	1.0	$5,000
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$2,944,543
Construction Contingencies (25%)				$736,136
TOTAL CONSTRUCTION				**$3,680,679**
Design (15%)				**$552,102**

Revised: 3/14/08

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,100 cfs Flood Protection)

Reaches 6 & 7 (Interstate 880 to Old Oakland Rd.)

Alternative I - Bypass

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$184,034**
Inspection (15%)				**$552,102**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	0.0	$0
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	1.3	$1,345,403
Commercial (creek)	$5,000	ACRE	0.0	$0
Commercial (relocate on site)	$500,000	EA.	0.0	$0
Public (partial)	$1,000,000	ACRE	0.8	$756,938
Public (creek)	$5,000	ACRE	0.0	$0
Public (relocate on site)		EA.	0.0	$0
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$2,102,341**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	7.5	$1,492,386
Revegetation (off-site)	$200,000	ACRE	14.9	$2,984,772
Property acquisition for off-site revegetation	$1,000,000	ACRE	14.9	$14,923,862
MITIGATION COSTS				**$19,401,020**
TOTAL COSTS				**$26,472,279**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,100 cfs Flood Protection)

Revised: 3/14/08

Reach 8a (Oakland Road to upstream limit of golf course)

Alternative I - Bypass

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	1.5	$73,850
Vegetation demolition	$10,000	ACRE	0.0	$0
Building demolition	$10,000	ACRE	0.0	$0
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	0.0	$0
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	0.0	$0
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	0.0	$0
Levee Construction				
Levee	$50	C.Y.	2,782.7	$139,133
Bridges and Culverts				
Bridge Removal	$100,000	EA.	0.0	$0
District Cost To Replace _ Bridge	$3,000,000	EA.	0.0	$0
Traffic Control	$100,000	EA.	0.0	$0
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	0.0	$0
Water Main	$100	L.F.	0.0	$0
Outfalls (12in. - 54in.)	$5,000	EA.	0.0	$0
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$212,984
Construction Contingencies (25%)				$53,246
TOTAL CONSTRUCTION				**$266,229**
Design (15%)				**$39,934**

Revised: 3/14/08

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,100 cfs Flood Protection)

Reach 8a (Oakland Road to upstream limit of golf course)

Alternative I - Bypass

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$13,311**
Inspection (15%)				**$39,934**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	0.0	$0
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	0.0	$0
Commercial (creek)	$5,000	ACRE	0.0	$0
Commercial (relocate on site)	$500,000	EA.	0.0	$0
Public (partial)	$1,000,000	ACRE	0.9	$860,224
Public (creek)	$5,000	ACRE	0.0	$0
Public (relocate on site)		EA.	0.0	$0
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$860,224**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	0.0	$0
Revegetation (off-site)	$200,000	ACRE	0.0	$0
Property acquisition for off-site revegetation	$1,000,000	ACRE	0.0	$0
MITIGATION COSTS				**$0**
TOTAL COSTS				**$1,219,633**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,100 cfs Flood Protection)

Revised: 3/14/08

Reach 8b (upstream limit of golf course to Berryessa Road)

Alternative I - Bypass

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	7.3	$367,130
Vegetation demolition	$10,000	ACRE	2.0	$19,937
Building demolition	$10,000	ACRE	0.2	$1,514
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	5.8	$29,158
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	56,873.7	$1,137,473
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	178.8	$178,795
Levee Construction				
Levee	$50	C.Y.	33,220.6	$1,661,031
Bridges and Culverts				
Bridge Removal	$100,000	EA.	0.0	$0
District Cost To Replace _ Bridge	$3,000,000	EA.	0.0	$0
Traffic Control	$100,000	EA.	0.0	$0
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	0.0	$0
Water Main	$100	L.F.	0.0	$0
Outfalls (12in. - 54in.)	$5,000	EA.	0.0	$0
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$3,395,037
Construction Contingencies (25%)				$848,759
TOTAL CONSTRUCTION				**$4,243,797**
Design (15%)				**$636,570**

Revised: 3/14/08

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,100 cfs Flood Protection)

Reach 8b (upstream limit of golf course to Berryessa Road)

Alternative I - Bypass

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$212,190**
Inspection (15%)				**$636,570**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	0.0	$0
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	2.9	$2,874,489
Commercial (creek)	$5,000	ACRE	0.0	$0
Commercial (relocate on site)	$500,000	EA.	0.0	$0
Public (partial)	$1,000,000	ACRE	0.0	$0
Public (creek)	$5,000	ACRE	0.0	$0
Public (relocate on site)		EA.	0.0	$0
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$2,874,489**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	2.0	$398,739
Revegetation (off-site)	$200,000	ACRE	4.0	$797,478
Property acquisition for off-site revegetation	$1,000,000	ACRE	4.0	$3,987,390
MITIGATION COSTS				**$5,183,607**
TOTAL COSTS				**$13,787,221**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Revised: 3/14/08

Reach 9 (Berryessa Road to Mabury Road)

Alternative I - Bypass

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	12.0	$597,893
Vegetation demolition	$10,000	ACRE	3.2	$32,405
Building demolition	$10,000	ACRE	1.8	$18,241
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	0.0	$0
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	70,371.1	$1,407,422
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	0.0	$0
Levee Construction				
Levee	$50	C.Y.	23,708.8	$1,185,439
Bridges and Culverts				
Bridge Removal	$100,000	EA.	0.0	$0
District Cost To Replace Maybury Bridge	$3,000,000	EA.	0.0	$0
Traffic Control	$100,000	EA.	0.0	$0
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	0.0	$0
Water Main	$100	L.F.	200.0	$20,000
Outfalls (12in. - 54in.)	$5,000	EA.	0.0	$0
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$3,261,399
Construction Contingencies (25%)				$815,350
TOTAL CONSTRUCTION				**$4,076,749**
Design (15%)				**$611,512**

Revised: 3/14/08

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Reach 9 (Berryessa Road to Mabury Road)

Alternative I - Bypass

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$203,837**
Inspection (15%)				**$611,512**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	0.0	$0
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	9.8	$9,820,865
Commercial (creek)	$5,000	ACRE	0.2	$1,105
Commercial (relocate on site)	$500,000	EA.	0.0	$0
Public (partial)	$1,000,000	ACRE	0.0	$0
Public (creek)	$5,000	ACRE	0.0	$0
Public (relocate on site)		EA.	0.0	$0
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$9,821,970**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	3.2	$648,094
Revegetation (off-site)	$200,000	ACRE	6.5	$1,296,187
Property acquisition for off-site revegetation	$1,000,000	ACRE	6.5	$6,480,936
MITIGATION COSTS				**$8,425,216**
TOTAL COSTS				**$23,750,798**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Revised: 3/14/08

Reach 10 (Mabury Road to Hwy 101)

Alternative I - Bypass

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	2.1	$102,642
Vegetation demolition	$10,000	ACRE	0.0	$0
Building demolition	$10,000	ACRE	0.0	$0
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	0.0	$0
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	20,079.8	$401,595
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	0.0	$0
Levee Construction				
Levee	$50	C.Y.	5,135.4	$256,771
Bridges and Culverts				
Bridge Removal	$100,000	EA.	0.0	$0
District Cost To Replace HWY-101 Bridge	$3,000,000	EA.	0.0	$0
Traffic Control	$100,000	EA.	0.0	$0
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	0.0	$0
Water Main	$100	L.F.	0.0	$0
Outfalls (12in. - 54in.)	$5,000	EA.	1.0	$5,000
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$766,008
Construction Contingencies (25%)				$191,502
TOTAL CONSTRUCTION				**$957,510**
Design (15%)				**$143,627**

Revised: 3/14/08

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Reach 10 (Mabury Road to Hwy 101)

Alternative I - Bypass

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$47,876**
Inspection (15%)				**$143,627**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	0.0	$0
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	3.2	$3,200,896
Commercial (creek)	$5,000	ACRE	0.6	$2,911
Commercial (relocate on site)	$500,000	EA.	0.0	$0
Public (partial)	$1,000,000	ACRE	0.4	$374,069
Public (creek)	$5,000	ACRE	0.0	$0
Public (relocate on site)		EA.	0.0	$0
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$3,577,876**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	2.1	$410,569
Revegetation (off-site)	$200,000	ACRE	4.1	$821,137
Property acquisition for off-site revegetation	$1,000,000	ACRE	4.1	$4,105,687
MITIGATION COSTS				**$5,337,393**
TOTAL COSTS				**$10,207,907**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Revised: 3/14/08

Reach 11a (Hwy 101 to Lower Silver Creek)

Alternative I - Bypass

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	0.0	$0
Vegetation demolition	$10,000	ACRE	0.0	$0
Building demolition	$10,000	ACRE	0.0	$0
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	0.0	$0
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	0.0	$0
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	0.0	$0
Levee Construction				
Levee	$50	C.Y.	0.0	$0
Bridges and Culverts				
Bridge Removal	$100,000	EA.	0.0	$0
District Cost To Replace _ Bridge	$3,000,000	EA.	0.0	$0
Traffic Control	$100,000	EA.	0.0	$0
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	0.0	$0
Water Main	$100	L.F.	0.0	$0
Outfalls (12in. - 54in.)	$5,000	EA.	0.0	$0
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$0
Construction Contingencies (25%)				$0
TOTAL CONSTRUCTION				**$0**
Design (15%)				**$0**

Revised: 3/14/08

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Reach 11a (Hwy 101 to Lower Silver Creek)

Alternative I - Bypass

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$0**
Inspection (15%)				**$0**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	0.0	$0
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	0.0	$0
Commercial (creek)	$5,000	ACRE	0.0	$0
Commercial (relocate on site)	$500,000	EA.	0.0	$0
Public (partial)	$1,000,000	ACRE	0.0	$0
Public (creek)	$5,000	ACRE	0.0	$0
Public (relocate on site)		EA.	0.0	$0
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$0**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	0.0	$0
Revegetation (off-site)	$200,000	ACRE	0.0	$0
Property acquisition for off-site revegetation	$1,000,000	ACRE	0.0	$0
MITIGATION COSTS				**$0**
TOTAL COSTS				**$0**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Revised: 3/14/08

Reach 11b (Lower Silver Creek to Julian Street)

Alternative I - Bypass

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	0.0	$0
Vegetation demolition	$10,000	ACRE	0.0	$0
Building demolition	$10,000	ACRE	0.0	$0
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	0.0	$0
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	0.0	$0
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	0.0	$0
Levee Construction				
Levee	$50	C.Y.	0.0	$0
Bridges and Culverts				
Bridge Removal	$100,000	EA.	0.0	$0
District Cost To Replace Julian St. Bridge	$3,000,000	EA.	0.0	$0
Traffic Control	$100,000	EA.	0.0	$0
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	0.0	$0
Water Main	$100	L.F.	0.0	$0
Outfalls (12in. - 54in.)	$5,000	EA.	0.0	$0
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$0
Construction Contingencies (25%)				$0
TOTAL CONSTRUCTION				**$0**
Design (15%)				**$0**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Reach 11b (Lower Silver Creek to Julian Street)

Alternative I - Bypass

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$0**
Inspection (15%)				**$0**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	0.0	$0
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	0.0	$0
Commercial (creek)	$5,000	ACRE	0.0	$0
Commercial (relocate on site)	$500,000	EA.	0.0	$0
Public (partial)	$1,000,000	ACRE	0.0	$0
Public (creek)	$5,000	ACRE	0.0	$0
Public (relocate on site)		EA.	0.0	$0
Manufactured homes	$600,000	E.A.	0,0	$0
RIGHT-OF-WAY COSTS				**$0**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	0.0	$0
Revegetation (off-site)	$200,000	ACRE	0.0	$0
Property acquisition for off-site revegetation	$1,000,000	ACRE	0.0	$0
MITIGATION COSTS				**$0**
TOTAL COSTS				**$0**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Revised: 3/14/08

Reach 12 (Julian Street to Santa Clara Street)

Alternative I - Bypass

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	0.0	$0
Vegetation demolition	$10,000	ACRE	0.0	$0
Building demolition	$10,000	ACRE	0.0	$0
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	0.0	$0
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	0.0	$0
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	0.0	$0
Levee Construction				
Levee	$50	C.Y.	0.0	$0
Bridges and Culverts				
Bridge Removal	$100,000	EA.	0.0	$0
District Cost To Replace Santa Clara St. Bridge	$3,000,000	EA.	0.0	$0
Traffic Control	$100,000	EA.	0.0	$0
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	0.0	$0
Water Main	$100	L.F.	500.0	$50,000
Outfalls (12in. - 54in.)	$5,000	EA.	2.0	$10,000
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$60,000
Construction Contingencies (25%)				$15,000
TOTAL CONSTRUCTION				**$75,000**
Design (15%)				**$11,250**

Revised: 3/14/08

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Reach 12 (Julian Street to Santa Clara Street)

Alternative I - Bypass

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$3,750**
Inspection (15%)				**$11,250**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	0.0	$0
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	0.0	$0
Commercial (creek)	$5,000	ACRE	0.0	$0
Commercial (relocate on site)	$500,000	EA.	0.0	$0
Public (partial)	$1,000,000	ACRE	0.0	$0
Public (creek)	$5,000	ACRE	0.0	$0
Public (relocate on site)		EA.	0.0	$0
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$0**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	0.0	$0
Revegetation (off-site)	$200,000	ACRE	0.0	$0
Property acquisition for off-site revegetation	$1,000,000	ACRE	0.0	$0
MITIGATION COSTS				**$0**
TOTAL COSTS				**$101,250**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Revised: 3/14/08

Reach 13 (Santa Clara Street to William Street)

Alternative I - Bypass

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	1.1	$52,872
Vegetation demolition	$10,000	ACRE	0.3	$2,821
Building demolition	$10,000	ACRE	0.0	$0
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	0.0	$0
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	0.0	$0
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	0.0	$0
Levee Construction				
Levee	$50	C.Y.	14,368.9	$718,447
Bridges and Culverts				
Bridge Removal	$100,000	EA.	0.0	$0
District Cost To Replace San Antonio and William St	$3,000,000	EA.	0.0	$0
Traffic Control	$100,000	EA.	0.0	$0
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	0.0	$0
Water Main	$100	L.F.	0.0	$0
Outfalls (12in. - 54in.)	$5,000	EA.	0.0	$0
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$774,140
Construction Contingencies (25%)				$193,535
TOTAL CONSTRUCTION				**$967,676**
Design (15%)				**$145,151**

Revised: 3/14/08

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Reach 13 (Santa Clara Street to William Street)

Alternative I - Bypass

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$48,384**
Inspection (15%)				**$145,151**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	14.0	$28,000,000
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	0.0	$0
Commercial (creek)	$5,000	ACRE	0.0	$0
Commercial (relocate on site)	$500,000	EA.	0.0	$0
Public (partial)	$1,000,000	ACRE	0.0	$0
Public (creek)	$5,000	ACRE	0.0	$0
Public (relocate on site)		EA.	0.0	$0
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$28,000,000**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	0.3	$56,424
Revegetation (off-site)	$200,000	ACRE	0.6	$112,847
Property acquisition for off-site revegetation	$1,000,000	ACRE	0.6	$564,236
MITIGATION COSTS				**$733,507**
TOTAL COSTS				**$30,039,869**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Revised: 3/14/08

Reach 14 (William Street to Hwy 280)

Alternative I - Bypass

Item	Unit Cost	Unit	Quantity	Amount
Site Preparation				
Clearing and Grubbing	$50,000	ACRE	8.3	$416,027
Vegetation demolition	$10,000	ACRE	5.6	$56,279
Building demolition	$10,000	ACRE	0.0	$0
Coffer dams installation	$10,000	C.Y.	0.0	$0
Coffer dams removal	$5,000	C.Y.	0.0	$0
Earthwork				
Structural excavation	$65	C.Y.	0.0	$0
Excavation	$20	C.Y.	0.0	$0
Fill	$10	C.Y.	0.0	$0
Floodwall Construction				
Floodwall	$1,000	C.Y.	0.0	$0
Levee Construction				
Levee	$50	C.Y.	0.0	$0
Bridges and Culverts				
Bridge Removal	$100,000	EA.	0.0	$0
District Cost To Replace _ Bridge	$3,000,000	EA.	0.0	$0
Traffic Control	$100,000	EA.	0.0	$0
Utility Relocation/Modification				
Pipeline Gas Main	$100	L.F.	0.0	$0
Sanitary Sewer Line Relocation	$200	L.F.	0.0	$0
Water Main	$100	L.F.	0.0	$0
Outfalls (12in. - 54in.)	$5,000	EA.	0.0	$0
Outfalls (60in. - 78in.)	$10,000	EA.	0.0	$0
Roadway Work	$20	S.F.	0.0	$0
Miscellaneous				
Armoring Aggregate. (6in. Maint. Rd.)	$1.00	S.F.	0.0	$0
Gates	$800	EA.	0.0	$0
Fencing	$10	L.F.	0.0	$0
Water Quality Monitoring	$100,000	EA.	0.0	$0
SUBTOTAL				$472,306
Construction Contingencies (25%)				$118,076
TOTAL CONSTRUCTION				**$590,382**
Design (15%)				**$88,557**

MID-COYOTE CREEK PROJECT, 26174043
Cost Estimate Summary (17,000 cfs Flood Protection)

Reach 14 (William Street to Hwy 280)

Alternative I - Bypass

Item	Unit Cost	Unit	Quantity	Amount
Geotechnical (5%)				**$29,519**
Inspection (15%)				**$88,557**
Property Acquisition (per Real Estate cost estimate)				
Residential (complete)	$2,000,000	E.A.	0.0	$0
Residential (partial)	$1,000,000	ACRE	0.0	$0
Residential (creek)	$5,000	ACRE	0.0	$0
Commercial (partial)	$1,000,000	ACRE	0.0	$0
Commercial (creek)	$5,000	ACRE	0.0	$0
Commercial (relocate on site)	$500,000	EA.	0.0	$0
Public (partial)	$1,000,000	ACRE	6.8	$6,808,058
Public (creek)	$5,000	ACRE	0.0	$0
Public (relocate on site)		EA.	0.0	$0
Manufactured homes	$600,000	E.A.	0.0	$0
RIGHT-OF-WAY COSTS				**$6,808,058**
Mitigation				
Revegetation (on-site)	$200,000	ACRE	5.6	$1,125,570
Revegetation (off-site)	$200,000	ACRE	11.3	$2,251,141
Property acquisition for off-site revegetation	$1,000,000	ACRE	11.3	$11,255,705
MITIGATION COSTS				**$14,632,416**
TOTAL COSTS				**$22,237,491**

Priliminary Cost Estimate for an Underground RCB Bypass

Length = 10000+2950 = 12,950 feet

Item	Quantities	Unit	Unit Costs	Amount
Site Preparation				
Roadway Pavement Removal	15.46	Acre	$ 29,000	$ 448,315
Bypass				
Concrete volume	59474.00	C.Y.	$ 1,100	$ 65,421,400
Utility Replacement/Protection/Modification		L.S.		$ 1,000,000
Earth Work				
Soil excavation	684951.00	C.Y.	$ 40	$ 27,398,040
Soil embankment	149795.00	C.Y.	$ 40	$ 5,991,800
Shoring	2096605.00	S.F.	$ 25	$ 52,415,125
Asphalt Replacement	24941.00	C.Y.	$ 11	$ 274,351
Miscellaneous				
Fencing	25900.00	L.F.	$ 15	$ 388,500
Traffic Control		LS		$ 2,000,000
Property Acquisition				
Building demolition	0.00	Acre	$ 1,005,500	$ -
land purchase	0.93	Acre	$ 1,000,000	$ 930,000
Building demolition	0.00	Acre	$ 1,005,500	$ -
SUBTOTAL				**$ 156,267,531**
Mobilization (10%)				$ 15,626,753
Construction Contingencies (25%)				$ 39,066,883
TOTAL CONSTRUCTION				**$ 210,961,167**
Inspection (5%)				$ 10,548,058
Construction Management (10%)				$ 21,096,117
TOTAL COSTS				**$ 242,605,342**

Mid Coyote

Alt J - Anderson Reservoir Modification Only (64% full) no limits to operation

Item	Amount
Property Acquisition	
D/S Property Acquisition (see Alt I)	$ 54,000,000
Peoperty at Anderson Reservoir	$ 81,000,000
TOAL REAL ESTATE COSTS	**$ 135,000,000**
Construction	
Construction cost estimate from alt I w/o bypass for d/s reaches	$ 89,813,798
Cost of 13' pipeline at Anderson Reservoir (estimated from Lenihan Dam Project)	$ 218,000,000
Retrofit Anderson Dam	$ 50,000,000
TOTAL CONSTRUCTION COSTS	**$ 357,813,798**
TOTAL COSTS	**$ 492,813,798**

Mid Coyote

Alt K - Anderson Reservoir Modification Only (64% full)

Item	Amount
Property Acquisition	
D/S Property Acquisition (see Alt I)	$ 54,000,000
TOTAL REAL ESTATE COSTS	**$ 54,000,000**
Construction	
Construction cost estimate from alt I w/o bypass for d/s reaches	$ 89,813,798
Cost of 8' pipeline at Anderson Reservoir (estimated from Lenihan Dam Project)	$ 134,000,000
TOTAL CONSTRUCTION COSTS	**$ 223,813,798**
TOTAL COSTS	**$ 277,813,798**

Mid Coyote

Alt L - Detention Basins (Anderson Reservoir 90% full)

Item	Quantities	Unit	Unit Costs	Amount
Property Acquisition				
County land	1,346.15	ACRE	$ 10,000	$ 13,461,500
Private land	686.38	ACRE	$ 100,000	$ 68,638,000
D/S Property Acquisition (see Alt I)				$ 54,000,000
TOTAL REAL ESTATE COST				**$ 136,099,500.00**
Site Preparation				
Clearing and grubbing	1,563.00	Acre	$ 10,000	$ 15,630,000
Earth Work				
Pond soil excavation	23,090,026.67	C.Y.	$ 25	$ 577,250,667
Weir soil excavation	1,541.00	C.Y.	$ 25	$ 38,525
Miscellaneous				
Fencing		L.F.	$ 15	$ -
Maintenance*				
Pre-Emergent	1,563.00	ACRE	$ 376	$ 587,297
Post-Emergent	1,563.00	ACRE	$ 370	$ 578,982
Boom Mowing	1,563.00	ACRE	$ 162	$ 253,503
Aquatic	1,563.00	ACRE	$ 865	$ 1,352,261
Instream Veg. Removal	1,563.00	ACRE	$ 4,424	$ 6,914,149
Weed Abatement	1,563.00	ACRE	$ 272	$ 425,480
SUBTOTAL				**$ 603,030,864**
Mobilization (10%)				$ 60,303,086
Construction Contingencies (40%)				$ 241,212,346
TOTAL CONSTRUCTION				**$ 904,546,296**
Construction Management (10%)				$ 90,454,630
Inspection (5%)				$ 45,227,315
TOTAL BASINS CONSTRUCTION COSTS				**$ 1,040,228,240**

From alt I w/o bypass the construction cost estimate w/25% contin. for d/s reaches is:	$ 89,813,798
TOTAL CONSTRUCTION COSTS	**$ 1,130,042,038**
TOTAL COSTS	**$ 1,266,141,538**

Notes:

* Maintenance costs are FY 09, so future maintenance costs should be build in a 5% per year inflation rate

Mid Coyote

Alt M - Detention Basins (Anderson Reservoir 80% full)

Item	Quantities	Unit	Unit Costs	Amount
Property Acquisition				
County land	923.77	ACRE	$ 10,000	$ 9,237,700
Private land	246.11	ACRE	$ 100,000	$ 24,611,000
D/S Property Acquisition (see Alt I)				$ 54,000,000
Property at Anderson Reservoir	81.00	EA.	$ 1,000,000	$ 81,000,000
TOTAL REAL ESTATE COST				**$ 168,848,700**
Site Preparation				
Clearing and grubbing	849.00	ACRE	$ 10,000	$ 8,490,000
Earth Work				
Pond soil excavation	13,493,920.00	C.Y.	$ 25	$ 337,348,000
Weir soil excavation	1,067.00	C.Y.	$ 25	$ 26,675
Miscellaneous				
Fencing		L.F.	$ 15	$ -
Maintenance*				
Pre-Emergent	849.00	ACRE	$ 376	$ 319,012
Post-Emergent	849.00	ACRE	$ 370	$ 314,495
Boom Mowing	849.00	ACRE	$ 162	$ 137,699
Aquatic	849.00	ACRE	$ 865	$ 734,529
Instream Veg. Removal	849.00	ACRE	$ 4,424	$ 3,755,670
Weed Abatement	849.00	ACRE	$ 272	$ 231,115
SUBTOTAL				**$ 351,357,196**
Mobilization (10%)				$ 35,135,720
Construction Contingencies (40%)				$ 140,542,878
TOTAL CONSTRUCTION				**$ 527,035,793**
Construction Management (10%)				$ 52,703,579
Inspection (5%)				$ 52,703,579
TOTAL BASINS CONSTRUCTION COSTS				**$ 632,442,952**

From alt I w/o bypass the construction cost estimate w/25% contin. for d/s reaches is:	$ 89,813,798
Cost of 9' pipeline at Anderson Reservoir (estimated from Lenihan Dam Project)	$ 108,000,000
Retrofit Anderson Dam	$ 50,000,000
TOTAL CONSTRUCTION COSTS	**$ 880,256,750**
TOTAL COSTS	**$ 1,049,105,450**

Notes:

*Maintenance costs are FY 09, so future maintenance costs should be build in a 5% per year inflation rate

Mid Coyote

Alt N - Detention Basins (Anderson Reservoir 75% full)

Item	Quantities	Unit	Unit Costs	Amount
Property Acquisition				
County land	778.00	ACRE	$ 10,000	$ 7,780,000
D/S Property Acquisition (see Alt I)				$ 54,000,000
Property at Anderson Reservoir	81.00	EA.	$ 1,000,000	$ 81,000,000
TOTAL REAL ESTATE COST				**$ 142,780,000**
Site Preparation				
Clearing and grubbing	508.00	ACRE	$ 10,000	$ 5,080,000
Earth Work				
Pond soil excavation	9,039,506.67	C.Y.	$ 25	$ 225,987,667
Weir soil excavation	830.00	C.Y.	$ 25	$ 20,750
Miscellaneous				
Fencing		L.F.	$ 15	
Maintenance*				
Pre-Emergent	508.00	ACRE	$ 376	$ 190,881
Post-Emergent	508.00	ACRE	$ 370	$ 188,178
Boom Mowing	508.00	ACRE	$ 162	$ 82,393
Aquatic	508.00	ACRE	$ 865	$ 439,506
Instream Veg. Removal	508.00	ACRE	$ 4,424	$ 2,247,209
Weed Abatement	508.00	ACRE	$ 272	$ 138,288
SUBTOTAL				**$ 234,374,872**
Mobilization (10%)				$ 23,437,487
Construction Contingencies (40%)				$ 93,749,949
TOTAL CONSTRUCTION				**$ 351,562,308**
Construction Management (10%)				**$ 35,156,231**
Inspection (5%)				$ 35,156,231
TOTAL BASINS CONSTRUCTION COSTS				**$ 421,874,769**

From alt I w/o bypass the construction cost estimate w/25% contin. for d/s reaches is:	$ 89,813,798
Cost of 11' pipeline at Anderson Reservoir (estimated from Lenihan Dam Project)	$ 132,000,000
Retrofit Anderson Dam	$ 50,000,000
TOTAL CONSTRUCTION COSTS	**$ 693,688,567**
TOTAL COSTS	**$ 836,468,567**

Notes:

*Maintenance costs are FY 09, so future maintenance costs should be build in a 5% per year inflation rate

Mid Coyote

Alt O - Detention Basins & a Bypass d/s I-280

(Detention Basin)

Item	Quantities	Unit	Unit Costs	Amount
Property Acquisition				
County land	996.50	ACRE	$ 10,000	$ 9,965,000
Private land	254.80	ACRE	$ 100,000	$ 25,480,000
D/S Property Acquisition (see Alt I)				$ 54,000,000
TOTAL REAL ESTATE COST				**$ 89,445,000.00**
Site Preparation				
Clearing and grubbing	897.00	ACRE	$ 10,000	$ 8,970,000
Earth Work				
Pond soil excavation	14,534,520.00	C.Y.	$ 25	$ 363,363,000
Weir soil excavation	948.00	C.Y.	$ 25	$ 23,700
Miscellaneous				
Fencing		L.F.	$ 15	$ -
***Maintenance**				
Pre-Emergent	897.00	ACRE	$ 376	$ 337,048
Post-Emergent	897.00	ACRE	$ 370	$ 332,276
Boom Mowing	897.00	ACRE	$ 162	$ 145,484
Aquatic	897.00	ACRE	$ 865	$ 776,057
Instream Veg. Removal	897.00	ACRE	$ 4,424	$ 3,968,005
Weed Abatement	897.00	ACRE	$ 272	$ 244,181
SUBTOTAL				**$ 378,159,752**
Mobilization (10%)				$ 37,815,975
Construction Contingencies (40%)				$ 151,263,901
TOTAL CONSTRUCTION				**$ 567,239,628**
Construction Management (10%)				$ 56,723,963
Inspection (5%)				$ 56,723,963
TOTAL BASIN CONSTRUCTION COSTS				**$ 680,687,553**

TOTAL COSTS $ 770,132,553

Notes:

*Maintenance costs are FY 09, so future maintenance costs should be build in a 5% per year inflation rate

Mid Coyote

Alt O - Detention Basin & a Bypass d/s I-280

(Bypass)

Total Length=12,400 feet

Item	Quantities	Unit	Unit Costs	Amount
Site Preparation				
Clearing and Grubbing	7.95	ACRE	$ 29,000	$ 230,550
Concrete Work				
Concrete volume	38,578.00	C.Y.	$ 1,100	$ 42,435,800
Earth Work				
Soil excavation	403,615.00	C.Y.	$ 40	$ 16,144,600
Soil embankment	165,467.00	C.Y.	$ 40	$ 6,618,680
Shoring	747,800.00	S.F.	$ 50	$ 37,390,000
BD Material				
Volume	12,860.00	C.Y.	$ 25	$ 321,500
Asphalt replacement	3,214.00	C.Y.	$ 11	$ 35,354
Miscellaneous				
Fencing	24,800.00	L.F.	$ 15	$ 372,000
Traffic control		LS		$ 2,000,000
Property Acquisition				
Building demolition		ACRE	$ 1,000,000	
Land Purchase	0.90	ACRE	$ 1,000,000	$ 900,000
Utility Replacement/Protection		LS		$ 1,000,000
SUBTOTAL				**$ 107,448,484**
Mobilization (10%)				$ 10,744,848
Construction Contingencies (40%)				$ 42,979,394
TOTAL CONSTRUCTION				**$ 161,172,726**
Construction Management (10%)				$ 16,117,273
Inspection (5%)				$ 16,117,273
TOTAL BYPASS COSTS				**$ 193,407,271**

From alt I w/o bypass the construction cost estimate w/25% contin. for d/s reaches is:	$ 89,813,798
Detention Ponds total construction cost from previous page	$ 680,687,553
TOTAL CONSTRUCTION COSTS	**$ 963,908,622**
TOTAL COSTS	**$ 1,046,133,494**

Mid Coyote

Alt P - Bypass d/s I-280 (Anderson Reservoir 74% full)

Total Length=12,400 feet

Item	Quantities	Unit	Unit Costs	Amount
Property Acquisition				
Property around Anderson Reservoir	81	EA	$ 1,000,000.00	$ 81,000,000.00
D/S Property Acquisition (see Alt I)				$ 54,000,000
TOTAL REAL ESTATE COST				**$ 135,000,000**
Site Preparation				
Clearing and Grubbing	7.95	ACRE	$ 29,000	$ 230,550
Concrete Work				
Concrete volume	38,578.00	C.Y.	$ 1,100	$ 42,435,800
Earth Work				
Soil excavation	403,615.00	C.Y.	$ 40	$ 16,144,600
Soil embankment	165,467.00	C.Y.	$ 40	$ 6,618,680
Shoring	747,800.00	S.F.	$ 50	$ 37,390,000
BD Material				
Volume	12,860.00	C.Y.	$ 25	$ 321,500
Asphalt replacement	3,214.00	C.Y.	$ 11	$ 35,354
Miscellaneous				
Fencing	24,800.00	L.F.	$ 15	$ 372,000
Traffic control		LS		$ 2,000,000
Property Acquisition				
Building demolition		ACRE	$ 1,000,000	
Land purchase	0.90	ACRE	$ 1,000,000	$ 900,000
Utility Replacement/Protection		LS		$ 1,000,000
SUBTOTAL				**$ 107,448,484**
Mobilization (10%)				$ 10,744,848
Construction Contingencies (40%)				$ 42,979,394
TOTAL CONSTRUCTION				**$ 161,172,726**
Construction Management (10%)				$ 16,117,273
Inspection (5%)				$ 16,117,273
TOTAL BYPASS COSTS				**$ 193,407,271**

From alt I w/o bypass the construction cost estimate w/25% contin. for d/s reaches is:	$ 89,813,798
Cost of 11' pipeline at Anderson Reservoir (estimated from Lenihan Dam Project)	$ 132,000,000
Retrofit Anderson Dam	$ 50,000,000
TOTAL CONSTRUCTION COSTS	**$ 465,221,069**
TOTAL COSTS	**$ 600,221,069**

Mid Coyote

Alt Q - Anderson Reservoir & Coyote Reservoir Modification

Item		Amount
Property Acquisition		
D/S Property Acquisition (see Alt I)	$	54,000,000
TOTAL REAL ESTATE COSTS	**$**	**54,000,000**
Construction		
Construction cost estimate from alt I w/o bypass for d/s reaches	$	89,813,798
Cost of 13' pipeline at Anderson Reservoir (estimated from Lenihan Dam Project)	$	218,000,000
Cost of 15' pipeline at Anderson Reservoir (estimated from Lenihan Dam Project)	$	193,000,000
Retrofit Anderson Dam	$	50,000,000
TOTAL CONSTRUCTION COSTS	**$**	**550,813,798**
TOTAL COSTS	**$**	**604,813,798**

Attachment C

Project Outreach

Renewal of Great Oaks Building Lease (EL- 9.5: Decision making)

Through an oversight by staff, the option to renew the lease of the Great Oaks Building expired and a new lease agreement is required to continue District tenancy. The Board previously authorized the Chief Executive Officer to execute a lease agreement with the landlord for the space at 160 Great Oaks Boulevard on January 14, 2003. This lease agreement provided the District with an option to renew the lease for two additional one-year periods provided that the District exercised this option six months prior to the expiration of the lease agreement.

The current lease agreement expires on March 31, 2008. Discussions were held to determine if the options could still be exercised, but the landlord is adamant that it will not renew the terms of the lease agreement unless the District agrees to a three-year lease extension.

Although the term of the renewal commitment is two years longer than what the District would commit to if the option had been timely exercised, the monthly lease amount during the renewal period proposed by the landlord is more favorable then the monthly lease amount that was described in the option. The landlord's proposal would reduce the annual rent from $500,100 to $375,300 during the first year.

Staff will present the landlord's proposed renewal terms, along with staff's recommendation, to the Board during a closed session meeting in February 2008, in an effort to receive negotiating parameters to pursue a renewal of the lease agreement. The consequences of not proceeding with a lease renewal will require the District to leave the Great Oaks facility on March 31, 2008, and to relocate the impacted staff to a new location with related expenses.

The staff oversight is in review and appropriate action will be taken according to District procedures.

For further information, please contact Frank Maitski at (408) 265-2600, extension 2284.

Mid-Coyote Creek Flood Protection Project Neighborhood Relations (EL-9.5: Other)

To enhance the neighborhood relations strategy for the Mid-Coyote Creek Project, District staff is attending as many of the Home Owner Associations (HOA) meetings in the vicinity of the project as possible, two to three times each, over the next few months before holding more public meetings. The purpose of the initial HOA meeting is to provide background, purpose, and funding information on the project. The next meetings are to discuss the tools and methods that can be used to provide flood protection, i.e. levees, floodwalls, excavated benches, storage, etc., and if appropriate, specific alternative solutions in each of the affected neighborhoods.

On January 17, 2008, staff attended a meeting of the 13th Street Neighborhood Advisory Committee (NAC), consisting of several homeowners associations that border the creek north of Julian Street to the west. The meeting was held at the Upper Watson Park Community Center and attended by approximately 16 residents. Staff attended the meeting to provide background and updates on the project and reviewed some of the flood protection tools that can be utilized to address flooding, including levees, floodwalls, excavated flood benches, and bypass channels. Staff had previously attended the November 15, 2007, NAC meeting.

For further information, please contact Marc Klemencic at (408) 265-2600, extension 2084.

through water rights. Review water rights allocations to account for climate change implications.

For further information, please contact Sarah Young at (408) 265-2600, extension 2468.

Potential for Alternative Use of Vegetative Biomass

On Thursday, February 7, District staff met with Mr. Mike Cox, CEO of Anaerobe, Inc. in Morgan Hill to discuss opportunities for re-use of vegetative biomass. Mr. Cox has developed technology to harvest hydrogen through fermentation of vegetative biomass. He approached Director Rosemary Kamei and requested that the District meet with him to determine whether his technology presents disposal and re-use opportunities for vegetation from various projects.

Mr. Cox provided a tour of his facility and the technology that he has developed to harvest hydrogen for fuel use. He is interested in obtaining samples of Arundo donax (Arundo), an invasive species that the District removes from creeks as part of a mitigation program. He would like to test Arundo as a potential feedstock for his hydrogen fuel process. Arundo is currently disposed of on-site or taken to local landfills at a significant cost to the District. Anaerobe, Inc. could provide an alternative to current disposal practices for Arundo and other vegetation that may provide a cost savings to the District as well as a positive re-use for the material.

Anaerobe, Inc. will be provided with a sample of actively-growing Arundo later in the year to test for its fermentation potential. The plant is currently dormant and is not suitable for testing. District staff will provide samples of Arundo donax, and possibly other plant species, after the growing season begins. If the plant material is a suitable feedstock, staff will then approach management and the Board to discuss making this material available for the process. This potential partnership is consistent with the District's goal of being a green business.

For further information, please contact Marc Klemencic at (408) 265-2600, extension 2084.

Mid-Coyote Creek Flood Protection Project Update (EL-9.5: Other)

On February 6, 2008, District staff attended a meeting of the Olinder Neighborhood Association, which includes residents located in the area south of San Antonio Street, East of South 16th Street, West of North 23rd Street, and North of William Street in San Jose. The meeting was held at the Olinder Neighborhood Center and attended by approximately 12 residents. Staff provided handouts and reviewed project objectives, some of the problems identified, project schedule and discussed flood protection methods which can be utilized to address flooding, including levees, floodwalls, excavated flood benches, and bypass channels. Neighbors were very interested in the project and creek and discussed their concerns with flooding, the homeless, trash, and other illegal activities.

For further information, please contact Marc Klemencic at (408) 265-2600, extension 2084.

approach called Monitored Attenuation to address areas where perchlorate occurs below 11 pbb. The majority of the ten-mile long plume of perchlorate is below 11 pbb, so the Order will allow Olin to forgo active remediation for most of the affected area.

The City of Morgan Hill has petitioned the State Water Resources Control Board to review the Central Coast Water Board's Order because the Order does not require Olin to pay the City of Morgan Hill for operating its Tennant Well Treatment System, and because the Order allows Monitored Attenuation which the City asserts will not effectively remove perchlorate in a timely manner. The City has asked the Perchlorate Working Group to support its petition. Staff is drafting a letter of support and objecting to the use of Monitored Attenuation in areas where perchlorate is present at concentrations in excess of the California Maximum Contaminant Level (6 pbb).

Olin has completed installation of an extraction well that will remove perchlorate-contaminated water from the intermediate aquifer where the perchlorate concentration is above the 11 pbb and pump it back to the former Olin facility property at 425 Tennant Road, where it will be treated using ion exchange and reinjected into the aquifer. Olin also installed several new deep monitoring wells which confirm that perchlorate occurs at concentrations up to 50 pbb in the deep aquifer more than 300 feet below ground surface. The new monitoring wells are completed in a gravel deposit from which groundwater can be pumped at a high rate. Therefore, to remediate the deep aquifer, Olin is weighing its options for the disposition of large volumes of treated groundwater

For further information, please contact Keith Whitman at (408) 265-2600, extension 2080 or Behzad Ahmadi, extension 2324.

Mid-Coyote Creek Flood Protection Project Neighborhood Association Meeting

On Wednesday, February 20, 2008, staff of the Mid-Coyote Creek Project team attended a meeting of the Autumn Terrace at William Owners' Association, held at the Olinder Community Center and attended by approximately 22 residents. Director Joe Judge introduced the project to the residents and staff provided background and status on the project and reviewed some of the flood protection tools which can be utilized to address flooding, including: levees, floodwalls, excavated flood benches, and bypass channels. The District's portion of the meeting lasted approximately 20 minutes.

For further information, please contact Marc Klemencic at (408) 265-2600, extension 2084.

Public Meeting for Vasona Dam Survey Work

District staff and Director Rosemary Kamei held a public meeting for a land survey study planned at the base of Vasona Dam this spring. The survey will be conducted to more accurately determine the extent of the dam soils. At the meeting, staff explained the District's need to know the boundaries of the original dam should maintenance be needed sometime in the future. The property owners were also invited to contact staff at any time should they notice anything unusual with the dam or their properties.

Vasona Dam is the only district dam which has residential properties in such close proximity to the base of the dam. Seven property owners were invited to the meeting but only one couple

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Mid-Coyote Creek Flood Protection Project: Meeting with Naglee Park Campus Community Association

On Wednesday, April 16, 2008, Director Judge and District staff attended a meeting of the Naglee Park Campus Community Association, which consists of homeowners who live along the west side of Coyote Creek south of Santa Clara Street and north of Highway 280. The meeting was held at the San Jose Woman's Club and was attended by approximately 20 residents. The purpose of the meeting was to keep the community informed of project status, review project objectives, and discuss some of the flood protection concepts being evaluated to address flooding, including: levees, floodwalls, excavated flood benches, and bypass channels.

Our portion of the meeting lasted approximately 30 minutes and, based on the many questions and comments, it was clear that those in attendance showed real interest in the project and appreciated being kept informed of the project and having an opportunity to share their concerns and interests. Staff will be returning to meet with this group again in the next few months to discuss specific alternatives being evaluated in their neighborhood.

For further information, please contact Marc Klemencic at (408) 265-2600, extension 2084.

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Calabazas Creek at Bollinger Road Bridge Reconstruction Project (EL-9: Other)

On Friday, April 11, 2008, District staff held a public meeting at Hyde Middle School regarding the Calabazas Creek at Bollinger Road Bridge Reconstruction Project. The meeting notice went to more than 2,500 residents. The objective for the meeting was to inform the community that the final phase of work will begin next month and provide an opportunity for the residents to voice any concerns.

Director Kwok attended the meeting to welcome and thank community members for voicing their concerns. District Staff provided construction updates, next steps, and the project schedule. The comments received will be incorporated into improving District projects. The renovations include widening the bridge to provide more room for bikes and pedestrians, which was completed last season. It also includes building a larger culvert scheduled for completion this year.

For further information, please contact Beau Goldie at (408) 265-2600, extension 2634.

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New Blue Shield HMO Option (EL-9: Other)

The District's Benefits Committee has been reviewing the feasibility of introducing a new Blue Shield Health Maintenance Organization (HMO) plan as another medical coverage option for employees and retirees. Since the District currently offers employees and retirees the choice between a Kaiser or a Blue Shield Indemnity/Preferred Provider Organization (PPO) plan, this new Blue Shield HMO option would provide a third choice when selecting a medical plan.

Under the existing Blue Shield plan, the premium rates will increase by 5.85% or $412,017 in annual premiums effective April 1, 2008. The costs associated with this new Blue Shield HMO reliability. CCWD has expressed a desire to receive an indication from SBA contractors as to whether we intend to participate in the new LVE Project collectively or individually prior to the end of this calendar year. Staff does not believe a determination can be made at this time for the reasons described below.

To facilitate and inform staff's review of the LVE Project Environmental Impact Report/Environmental Impact Study (EIR/EIS) development, earlier this year the SBA contractors hired Camp Dresser & McKee (CDM) to conduct a joint assessment of the potential value of various storage options, including the LVE Project, as part of our respective potential long-term water supply portfolios. Specifically, based on existing information, the CDM study is defining costs and benefits for: 1) participating in the LVE Project; 2) expanding Del Valle Reservoir (in Alameda County); and 3) other water supply options such as additional water banking, water transfers, and regional desalination. CCWD staff is aware of this study and has been cooperating by sharing their LVE Project analyses with CDM. However, CCWD's project manager has recently cautioned that information being provided is "preliminary" and should not be used to make a final decision on partnership. The Draft LVE Project EIR/EIS is scheduled to be released to the public on December 5, 2008.

It is important to note that the context within which the LVE Project is being pursued has changed dramatically since first proposed during CALFED. At that time, climate change and sea-level rise were seen as theories rather than as policy drivers for improved Delta infrastructure. Today, the Bay-Delta Conservation Plan, the Public Policy Institute of California, the Delta Vision process, and the Office of the Legislative Analyst have all concluded that a new conveyance facility in the Delta is critical for the reliability of the state's water supplies and to better manage the Delta ecosystem. The water supply reliability benefits that would accrue to the District from new Delta conveyance are estimated to be greater than those that would be associated with the LVE Project, although final analyses await additional information still being developed by CCWD and Reclamation.

Any conclusions drawn from the current available data is premature, because refined feasibility level analyses are not scheduled to be available until April 2009. Staff is working with CDM to identify for CCWD and Reclamation what the District needs to know to make an informed determination regarding our participation (or not) in the LVE Project. Based on discussions with the CCWD and Reclamation project managers, staff believes making a decision before the end of the year would be premature.

Staff will continue to participate in the CDM effort with the other SBA contractors and will report back to the Board after the release of the feasibility analyses next April.

For further information, please contact Greg Zlotnick at (408) 265-2600, extension 2081.

Mid-Coyote Creek Flood Protection Project (EL-9: Other)

On November 5 and 12, 2008, staff attended two neighborhood homeowner association meetings. One was a combined meeting with Roosevelt Park and Olinder Neighborhood Associations held at the Portuguese Community Center (attended by 30 residents) and the other was with the Naglee Neighborhood Association held at Joyce Ellington Library (attended by approximately 20 residents).

The purpose of the meetings was to provide an update on the project, present the conceptual

Santos
5 Conservation Program Rebate Process I-09-0003 (GP-3: Other)

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Jaffe Demolition (EL-9.5: Other)

In the May 22, 2008 CEO Bulletin, staff informed the Board of plans to demolish the Jaffe residence located at 328 South 17th Street, San Jose, in the Naglee Park community along the Coyote Creek. In October 2008, staff applied for and received a demolition permit from the City of San Jose Building Department for the removal of the structure from the site. An asbestos survey was subsequently completed to confirm presence of asbestos in the dry wall texture throughout the house and in concentrations high enough to require removal prior to demolition.

On March 17, 2009 staff hosted an on-site meeting and pre-bid walk through the house for several contractors who are interested in conducting the asbestos abatement. The award of the contract for the asbestos abatement is scheduled for March 26, 2009. A third party monitoring contractor will be hired to ensure proper air quality and health and safety standards during asbestos abatement. The third-party contract is currently being advertised.

Upon completing the asbestos abatement, demolition of the residence will be conducted by the Coyote Watershed Field Operations staff. It is anticipated that the demolition will be completed by June 30, 2009. A notice will be mailed to the residents in the neighborhood prior to the demolition.

For further information, please contact Liang Lee at (408) 265-2600, extension 2927.

Construction Status of the Pacheco Pumping Plant Regulating Tank – Phase A Relining and Recoating Project (EL-9.5: Other)

The relining and recoating work for the Pacheco Pumping Plant Regulating Tank has begun. Based on the contractor's latest schedule, Blastco expects to finish the interior lining and other work earlier than anticipated. This will allow the District to put the tank back in service several days ahead of schedule. Blastco plans to complete all other remaining contract work by mid April.

The project construction has encountered certain challenges related to weather and changed site conditions. Staff found several locations of pitted corrosion on the bottom of the tank that needed to be repaired that was not anticipated during the design. In addition, the contractor's temporary enclosure system for climate control was damaged during high winds resulting in some added tank repair work. This has caused the contractor to work extra hours, including weekends and holidays, in order to stay on schedule.

For further information, please contact Dave Chesterman at (408) 265-2600, extension 2328.

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Update to District's Strategic Plan (EL-9.5: Other)

An update to the District's Strategic Plan (2010-2015) occurred in the summer of 2009, with the aim of completing the plan update prior to the development of the 2011 fiscal year budget. The CEO and management team reviewed the strategic vision, identified major issues and challenges confronting the District in the next five years, and formulated strategies to address these challenges.

Overall, management confirmed that the District's strategic direction is to continue to focus on fiscal responsibility, our workforce, asset management, and our connection with the community. A copy of the plan has been included in October 6, 2009, non-agenda packet.

For transparency, the Strategic Plan has been posted on the District's website, http://www.valleywater.org/uploadedFiles/About/TransparencyAccountability/Strategic_Plan_2010-2015.pdf?n=2861

For further information, please contact Mary Ann Ruiz at (408) 265-2600, extension 2633.

Mid Coyote Creek Update (EL-9.5: Other)

Staff will attend the next meeting of the Campus Community Association, scheduled for October 21, 2009, which includes the neighborhoods in the vicinity of mid-Coyote Creek. Staff will be discussing two issues with the residents. Firstly, from comments by the residents at the community open-house conducted in June of this year, one discussion will be to solicit resident input on maintenance needs along the Creek. Because Coyote Creek has limited access, residents wanted to offer the District right-of-way to enable more maintenance work to be performed. This is an opportunity for a systematic evaluation of what is needed to prevent unnecessary flooding and achieve the District's mission.

The second issue is to solicit resident input on fallen trees that may be flood hazards. This is to prepare for a mild El Nino season that National Oceanic and Atmospheric Administration (NOAA) is currently projecting. With the District's limited access, staff cannot inspect a significant portion of the creek. For the reaches within our right-of-way, staff has performed debris removal operations to rid of potential flood hazards. For those reaches that could not be inspected, resident's input is needed.

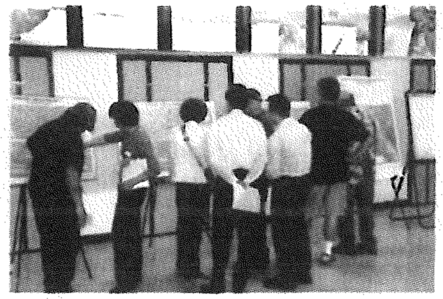
Currently, the mid Coyote Creek flood protection project team is investigating all alternatives to provide flood protection and minimize impact to the community and environment. The alternative analysis will be completed in spring 2010. Until the project team meets with the neighborhood again, staff will maintain ongoing communication with the community.

For further information, please contact Liang Lee at (408) 265-2600, extension 2927.

CEO Bulletin

Coyote Flood Protection Planning Study

The water district's project team for the Coyote Flood Protection "Planning Study" (formerly known as the Mid-Coyote Project) hosted a very successful series of open houses and a bus tour last week. An open house format meeting was held during the week at two elementary schools from 3 p.m. to 7 p.m. and was followed by a narrated three hour bus tour of the watershed on Saturday. The meetings were attended by 122 neighbors from the Naglee/College Park neighborhoods on Monday and 14 neighbors from the Old Oakland Road neighborhoods on Wednesday. Twenty-five neighbors joined the district planning study team on Saturday for the watershed tour.



Zhen Shao explains alternatives with a neighbor
SPM Dennis Cheong explains the timing and effects of rain in the upper watershed

Dennis Cheong shows the Saturday bus tour participants some of the differences and advantages of flood protection and maintenance, in areas with more land and access.

After engaging the planning study team in one-on-one discussions, the neighbors were very complimentary about district efforts to explain and include all neighborhoods in the alternative selection process. Much of the pre-meeting worries within the neighborhood were settled once they understood how early in the planning process we were engaging the public. The opening project display for the meetings was a graphic representation of the district's alternative selection process (seen below) and how it is designed to be inclusive and full of outreach opportunities throughout the process to get to a staff recommended alternative.

Other project displays shown at the meetings showed the various groupings of flood protection methods and how they might be used in the neighborhoods. The planning study team gathered pages of neighbor comments on the various design elements and are using the feed-back to bring the next set of refined alternatives back to the neighbors with a higher level of information about costs, wall heights and neighborhood impacts. The next meetings with the planning study neighborhoods is planned for late Fall of 2009.